

**UNITED STATES DISTRICT COURT  
DISTRICT OF NEW JERSEY**

ASSOCIATION OF NEW JERSEY  
RIFLE & PISTOL CLUBS, INC., et  
al.

*Plaintiffs,*

v.  
MATTHEW PLATKIN, et al.

*Defendants.*

Civil Action No. 3:18-cv-10507-PGS-  
LHG

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MARK CHEESEMAN, et al.

*Plaintiffs,*

v.  
MATTHEW PLATKIN, et al.

*Defendants.*

Civil Action No. 3:22-cv-4360-PGS-  
LHG

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BLAKE ELLMAN, et al.

*Plaintiffs,*

v.  
MATTHEW PLATKIN, et al.

*Defendants.*

Civil Action No. 1:22-cv-4397-PGS-  
LHG

**DECLARATION OF ASHLEY HLEBINSKY IN SUPPORT OF  
THE MOTION FOR SUMMARY JUDGMENT OF  
ASSOCIATION OF NEW JERSEY RIFLE & PISTOL CLUBS,  
INC. (“ANJRPC”) PLAINTIFFS AND ELLMAN PLAINTIFFS**

1. My name is Ashley Hlebinsky. I am President of The Gun Code, LLC with an address at 2124 E Kerry Lane, Phoenix, AZ 85024.

2. I am over the age of 18, have personal knowledge of the facts and events referred to in this Declaration, and am competent to testify to the matters stated below.

3. I am serving in this matter as an expert witness for *ANJRPC* and *Ellman* Plaintiffs.

4. All of the facts and statements made herein are within my personal knowledge. I make this Declaration in support of the Motion for Summary Judgment of *ANJRPC* Plaintiffs and *Ellman* Plaintiffs.

## **I. INTRODUCTION**

5. **Background and Qualifications.** I am a firearms historian, museum professional, and public educator, specializing in material culture studies, as well as a firearms and ammunition-related museum consultant, expert witness, freelance writer, and guest lecturer. Previously, I served as the Robert W. Woodruff Curator-in-Charge of the Cody Firearms Museum (henceforth to be known as the CFM), where I curated and managed a collection of around 7,000 firearms from the 1200s through modern day, with over 20,000 related artifacts, including ammunition, edged weapons, and accoutrements. I also served as the Project Director on the museum's full-scale multimillion dollar renovation, responsible for every aspect including but not limited to research, content, exhibition, and installation, which reopened in 2019. In Summer 2022, I co-founded the University of Wyoming College of Law's Firearms Research

Center.

6. I have spent the last fifteen years immersed in the study of firearms history, technology, and culture. I earned both bachelor's and master's degrees in American History from the University of Delaware, during which I studied firearms history and culture and instructed undergraduate students about military weaponry until World War I. Much of my work since then focuses heavily on material culture surrounding the macro-history of firearms and how their developments have affected industry, culture, and society for centuries. I have been fortunate to work in some of the largest collections in the United States, beginning my career as a researcher and fellow in the Smithsonian Institution's National Firearms Collection housed in the National Museum of American History.

7. Additionally, I spent a decade working with and running an American Alliance of Museum's accredited museum, the CFM, a part of the Buffalo Bill Center of the West, which receives approximately 200,000 visitors annually. Of the 200,000 people, it is estimated, based on survey data, that only 50% of those people admit to having a background or specified interest in firearms. During my tenure, I also served as Project Director of the museum's renovation. With the aid of my team, I was responsible for all facets of the renovation including but not limited to concept, content, fundraising, and collections management. Final content for the museum was peer reviewed internally and by an external panel of experts, including academic historians, museum professionals, teachers, public educators, gun collectors, and people unfamiliar with firearms, as well as people with a range of different political views on guns. The resulting museum, which reopened July 2019, provides a more interpretive space to facilitate productive dialogue on firearms and their roles in history. Throughout the CFM, terminology and

definitions play a significant role in educating both visitors not familiar with firearms and those who consider themselves aficionados. Because roughly half of the museum's audience is not familiar with firearms, we dedicated an entire gallery at the front of the museum to understanding the basics of firearms past and present, their features, ammunition, and safety. Since its opening, the museum has received favorable reviews from the Wall Street Journal and National Public Radio for its accessibility to diverse audiences and thoughtful handling of what can be a sensitive topic. It has also been praised for its efforts to educate on and impact firearms safety.<sup>1</sup>

8. During my time at the CFM and through my consulting, I have become nationally known for and sought after to provide a material culture perspective on firearms history that is often lacking in many modern, academic, and legislative discussions on firearms. I guide museums as well as other non- and for-profit organizations and government entities on the interpretation and understanding of that history. I have previously prepared reports and/or given testimony regarding the history of magazines, repeaters, and/or "assault weapons" (roughly equivalent to the New Jersey legislative term "assault firearm") for *Miller v Becerra (Bonta)*, *Ocean State Tactical et al v Rhode Island*, *Virginia Duncan v Bonta*, *State of Washington v. Federal Way Discount Guns et al.*, *Oregon Firearms Federation et al. v Oregon*, *Rupp v. Bonta*, *Barnett v. Raoul*, and *Guardian Arms v Inslee*. In May 2021, I testified in front of the Senate Judiciary Subcommittee on the Constitution's Hearing regarding "Ghost Guns," for which I researched and discussed the long history of privately made firearms and evolution of arms

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<sup>1</sup> Rothstein, Edward. "Handled With Care" *The Wall Street Journal*. September 27, 2019, <<https://www.wsj.com/articles/handled-with-care-11569601047>> Accessed June 15, 2023. Kudelska, Kamila. "Firearms Museum Focuses on Gun Safety, History and Culture." *NPR*. August 25, 2019, <<https://www.npr.org/2019/08/25/753448348/firearms-museum-focuses-on-gun-safety-history-and-culture>> Accessed June 15, 2023.

technology from the colonies through the 1960s. Because I have worked in several national collections that have upwards of 10,000 firearms each – collections that range from the earliest through most recent technology – I have developed a broad understanding of how firearms have evolved.

9. Working in large collections not only provided me an opportunity to gain knowledge of the entirety of firearms history, but also afforded me the opportunity to handle, assemble and disassemble, and shoot historic replica firearms. At the Smithsonian Institution's National Firearms Collection, I regularly handled firearms within the collection, with a specific emphasis on the U.S. Patent Office collection as well as the Edwin Bitter Martial Pistol collection. Over a decade at the CFM, I handled a large majority of the collection, not only in routine daily work, but also, when we were responsible for the deinstallation of over 4,000 firearms from the galleries into temporary storage during the renovation and the reinstallation of over 5,000 firearms. We routinely hosted visiting researchers and conducted our own research, so we would provide access to the artifacts in the collection. Sometimes we would allow for the disassembly of firearms for researchers to provide a more technical understanding of the internal mechanics of guns. We also disassembled firearms for photos as well as the examination of the artifacts for preventative maintenance. Running an internationally recognized and respected museum has also allowed me to spend time in other museums and private collections around the world, including the Institute of Military Technology (Titusville, FL), the Royal Armouries (Leeds, UK), and the Dutch Nationaal Militair Museum (Soest, Netherlands). Professionally, I am a member of several collector organizations, such as the preeminent American Society of Arms Collectors, which boasts the highest quality of collectors and museum curators. Because of

this exclusive access, many have allowed me to shoot either reproduction or original – if stable enough – firearms to get a deeper understanding of the operation of the firearm from a user’s perspective. Because firearms are so technically complicated, it is valuable to not only have researched them but also to have practical experience with them. I have shot representative examples in the evolution of firearms technology, from the earliest gun, the hand cannon to modern machine guns. Additionally, I have a firsthand understanding of the process required to make early arms, as I co-hosted a weapon making show on Discovery channel, entitled *Master of Arms*. I have also served as a writer and producer for several firearm history shows on History and Outdoor Channels.

10. In addition to my historical scholarship, I also have played a role in the public education around firearms. I have been responsible for the education of tens of thousands of students from elementary through college levels, teaching not only firearms safety and basics, but the historical and technical evolution of the firearm. In 2017, I developed the first full-scale symposium in the United States dedicated to the study of firearms in museums as material culture, which reoccurs annually. These symposia were organized to bring together firearms scholars from around the world to discuss their collections and create metrics to analyze the quality of scholarship that already has been done in the field. To continue that mission, I sit on the Editorial Board for the recently revived, peer-reviewed arms journal, *Armax*, and I co-founded the University of Wyoming College of Law’s Firearms Research Center in 2022. Despite its location in the College of Law, this new Center intends to encourage research of all types related to arms and ammunition.

11. Currently as a museum consultant, I am in the process of working on several

museums with heavy emphasis on firearms collections. I also conduct workshops on firearms, survey collections, and curate exhibitions at institutions such as the Houston Museum of Natural Science, CM Russell Museum & Complex, and the Mob Museum. I have served as a scholar and a panelist for the National Park Service and the Organization of American Historians on a forthcoming Coltsville National Historic Site. A current copy of my Curriculum Vitae summarizing my education and experience is attached at the end of this document as **Exhibit A**.

12. **Prior Expert Witness Testimony.**

Arnold v Kotek, September 2023

New Jersey Rifle and Pistol Association; Ellman v Platkin, June 2023

Guardian Arms LLC et al v Jay Inslee, May 2023

Federal Firearms Licensees of Illinois v Pritzker, March 2023 (Barnett v Raoul)

Rupp v. Bonta, February 2023

Oregon Firearms Federation et al v Oregon, December 2022

State of Washington v Federal Way Discount Guns et al, December 2022

Virginia Duncan et al v Bonta, November 2022

Ocean State Tactical et al v Rhode Island, October 2022

Senate Judiciary Subcommittee on the Constitution, Stop Gun Violence: Ghost Guns,  
May 2021

Franklin Armory et al v Rob Bonta, February 2021

FN Herstal v Sturm, Ruger & Co, January 2021

Sturm, Ruger & Co. v American Outdoor Brands Corp., October 2020

Guedes v BATFE, June 2019

Miller v Becerra (Bonta), November 2019

Regina (Nova Scotia) v Clayton, January 2019

Garrison v Sturm, Ruger & Company, Inc. 2018

13. **Scope of Work.** This Declaration has been prepared at the request of the law firm Hartman & Winnicki, P.C. It will establish an interconnectivity between military and civilian firearms. Dating to the earliest firearms ignition system in the early 1400s, firearms were used for both military and civilian purposes. Civilian purposes include target shooting, hunting, and defense. Due to financial restrictions as well as wartime tactics, superior technology was often the property of civilians rather than the military. Those private purchases could then be used for sport and/or defense. Soldiers would also independently acquire firearms that they could carry into battle to supplement their standard issue military arms. As manufacturing processes improved, it was also common for civilians to purchase surplus military firearms following a war for a much more inexpensive price – a trend which continues even today.

14. This Declaration will also identify major developments in firearms and ammunition technology, with an emphasis on history until 1911. In six hundred years, firearms technology gradually transitioned via many incremental innovations from an ignition system that utilized a burning match to fire a gun to the use of gas operating systems. Additionally, ammunition transitioned from the use of a round musket ball that was typically loaded after a measured amount of gun powder down the end of the barrel to a self-contained cartridge loaded from the breech. It will also identify developments in firearms technology including rifling (1450), repeating firearms (1400s), revolving cylinders (1680s), magazines (1630s), and other features often associated with New Jersey statutes.



15. This information will inform the following conclusions: 1. Until recently, civilians often had superior firearms than the military. The 1986 Hughes Amendment, a civilian machine gun ban, shifted that trend in the opposite direction. 2. Technologies often associated with modern day have roots back as far as the 1400s in some respects, and those modern-day firearms are the direct descendants of a centuries long trail of innovations that gradually and continually advanced firearms technology for the purpose of increasing efficiency and effectiveness. 3. It is likely that individuals during the Founding Era were aware (a) that these technologies existed before and at the time of the Founding Era and immediately thereafter and (b) that firearm technology previously underwent and would in the future undergo significant change and innovation.

16. **Methodology.** In terms of methodology, I typically use a combination of peer-reviewed articles and books, as well as established works by firearms researchers and collectors, and surviving artifacts. The study of firearms often differs from other fields within academic history. By academic history, I am referring to standard practices within the American university system, most often by those with J.D.s or Ph.Ds. More commonly though, scholarship surrounding firearms has been done by collectors, curators, and non-traditional researchers. For example, in the past many firearms museums across the world have been curated by a collector for the collector and aficionado rather than someone with a degree in museum studies and history. Because of how technical firearms are, these works lend themselves to being studied alongside surviving examples as well as primary source material. Some of the best research in the twentieth and twenty-first centuries has been done by these individuals, resulting in many academic scholars citing those sources, despite not being traditionally peer reviewed or

published in a university press. I do not automatically use academic scholarship because while some of the scholarship is informative and provides crucial context to larger narratives surrounding firearms, it also can be technically flawed. It is important to maintain an open mind and find a balance between these two seemingly divergent forms of scholarship when considering quality of content to inform modern day legislation.

17. **Terminology.** Throughout this Declaration, I will define terms as they appear, however, there are overarching definitions I would like to address outright. Due to variances within state and federal laws of firearms and ammunition related terminology, I wanted to provide greater clarity on how I understand these terms as they do not always align with legal definitions. These definitions were originally created and/or vetted for use in the Cody Firearms Museum by a combination of internal staff and an external panel of authorities, including researchers, collectors, curators, public educators, and historians.<sup>2</sup>

### **Overarching Terms:**

**Arms:** Short for armaments; blades, bows, firearms, etc.

**Firearm:** A portable gun

**Gun:** A device incorporating a tube from which bullets, shells, or other projectiles are propelled by explosive or expanding gases.

**Weapon:** An object used for threatening or inflicting bodily harm (whether for defensive or offensive purposes). The military refers to firearms as weapons.

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<sup>2</sup> For purposes of this report, some of the definitions have been modified slightly to align with New Jersey statutes.

### **Types of Firearms:**

**Carbine:** A shorter rifle, usually with a 20 inch or less barrel

**Handgun:** a short-barreled firearm meant to be fired with one hand. The term pistol is often used interchangeably.

**Machine Gun:** An automatic firearm either portable or mounted.

**Musket:** A military long gun, typically smoothbore, meant to be fired from the shoulder or off a rest.

**Revolver:** A type of handgun that has a revolving cylinder.

**Rifle:** A firearm with *rifling*, designed to be fired from the shoulder.

**Shotgun:** A smoothbore gun (*no rifling*) that fires shot (smaller pellets).

**Submachine Gun:** An automatic firearm that is portable and fires a pistol cartridge.

### **Parts of a Gun:**

**Barrel:** The component of a firearm through which projectiles travel.

**Bore:** The hollow portion inside a gun barrel.

**Breech:** The rear end of the barrel.

**Chamber:** The part of the barrel in which a cartridge is inserted before being fired.

**Cylinder:** The rotating portion of a revolver, consisting of multiple chambers.

**Forearm:** A wooden or synthetic stock, forward of the breech, where a shooter can rest their hand to support the firearm. The forearm is there to protect the shooter's hand from the heat of the barrel.

**Frame:** Also known as the receiver; the part of the firearm that holds together barrel, hammer, and trigger.

**Grips:** The portion of the firearm the user holds. Grips come in many forms, including half or partial, pistol, and forward grips.

**Hammer:** The part of a firearm that swings to impart a blow to ignite the cartridge.

**Magazine:** A container, detachable or fixed, where ammunition is stored while feeding a repeating firearm. *Note: Not interchangeable with clip, a device to feed ammunition into a magazine.*

**Muzzle:** Open end of the barrel from which projectiles emerge when fired

**Receiver:** Also known as the frame; the part of the firearm that holds together barrel, hammer, and trigger.

**Rifling:** Spiral grooves inside a barrel used to spin a bullet, much like throwing a football.

**Safety:** A mechanism designed to prevent accidental discharge.

**Sight:** Instruments to align a gun to fire accurately.

**Smoothbore:** An unrifled barrel.

**Stock:** The wood or synthetic part of the gun that a user holds.

**Trigger:** A mechanism that activates the firing sequence.

**Striker:** Also known as a linear hammer, the part of the firearm where a spring-loaded rod is used to strike the primer of a cartridge.

### **Types of Modern Actions:**

**Action:** The way a gun operates.

**Automatic:** A firearm that fires continuously when a trigger is pressed and stops either when the trigger is released, the firearm is out of ammunition, or it malfunctions.

*Note:* You may see the term “Automatic Handgun.” This is a colloquial term used for early semi-automatic handguns. They are not machine guns.

**Bolt Action:** A firearm with a breech that is opened by turning and sliding a bolt.

**Break Action:** A type of firearm in which the action opens at the breech to load ammunition into the chamber.

**Double Action:** A type of firearm in which the trigger does two actions, both cocking and firing the gun.

**Lever Action:** A firearm that uses a lever by the trigger guard to chamber a cartridge and typically, eject a spent case.

**Over/Under:** A type of firearm where two barrels sit one on top of the other and are loaded at the breech. Another similar style is a Side-By-Side.

**Semi-Automatic:** (*self-loading*) A firearm in which one round is fired each time the trigger is pressed. The firearm fires one round and chambers another to be ready when the user presses the trigger again.

**Single Action:** A type of firearm in which the trigger essentially does one action. A person must cock a hammer before pressing the trigger to fire the gun.

**Slide Action:** (*pump action*) A firearm that has a moveable forearm to chamber a round to be ready to fire and eject a spent case after a round is fired.

### **Ammunition:**

**Caliber:** The internal diameter or bore of a gun barrel.

**Cartridge:** A type of ammunition that contains a bullet or shot, propellant, and a primer within a case.

**Bullet:** Projectile.

**Shot:** Collective term for a group of bullets or pellets.

**Propellant:** Usually gun powder or smokeless powder. After ignition, the propellant forces the bullet out of the gun.

**Primer:** A catalyst to ignite propellant.

**Case:** The housing of cartridge components (metallic, paper, plastic).

**Gauge:** A term of measurement to describe the internal diameter of a shotgun barrel. It is determined by how many lead balls of that diameter makes one pound; the smaller the bore (caliber), the higher the gauge number because smaller bores take more round balls to make up a pound.

*Exception to the Rule:* The .410 bore is also a shotgun caliber that does not follow the standard gauge designation and definition.

**Shotgun Shell:** A form of ammunition loaded with shot or slugs, designed to be fired from a shotgun.

**Centerfire:** A type of cartridge that fires by a firing pin striking a separate primer in the center of a cartridge case.

**Rimfire:** A type of cartridge that fires by a firing pin striking a priming compound in the rim of the cartridge case.

**Paper Cartridge:** A cartridge composed of a powder charge and projectile wrapped in combustible paper that serves as wadding to ensure the projectile is tightly held in the barrel.

18. Please note, I avoid using colloquial terminology, such as “weapons of war” and “ghost guns” because they are often imprecise and can be used to infer an opinion on the technology itself rather than define something historically and/or legally. However, for this Declaration, I will be using the term assault weapon (or the equivalent New Jersey legislative term “assault firearm”) based on an overarching theme among various federal and state laws as a legislative catch-all term that has differing definitions dependent of proposed legislation that typically center around features of certain semi-automatic firearms. Note, this is not to be confused with the term Assault Rifle, which is defined by the Defense Intelligence Agency (1970) to mean a machine gun that is single person portable, selective fire (meaning it has both automatic and semi-automatic functions) and chambers an intermediate cartridge from a detachable magazine. The terms assault weapon (or firearm) and assault rifle are constantly confused with one another despite being extremely different technologies. Additionally, due to the Hughes Amendment, a part of the Firearms Owners Protection Act (1986), which is a civilian machine gun ban, assault rifles made after 1986 are not permitted for private purchase, and therefore, not a concern for this case.

19. I will frequently use the term repeater or repeating firearm. I define this as a firearm, of all types, that can fire more than one round before needing to be manually reloaded. I will also make distinctions between the types of repeaters, with a particular emphasis on those that are magazine-fed. A magazine is a vital part of the firearm; it is a container, detachable or fixed, that holds and feeds ammunition into a repeating firearm. In the periods being discussed, there are repeating firearms that do not use magazines, such as revolvers, which use a rotating cylinder that is as important and integral as a magazine is to fire a gun. When I am discussing a repeater that has a magazine, I will qualify it as such. Additionally, I will use capacity to refer specifically to the number of rounds of ammunition that can be held within a firearm. Please see **Exhibit B** for more definitions.

## **II. GENERAL FIREARMS HISTORY**

20. **History of Sport and War.** The expression “weapon of war” is used a lot in modern and historical discussions surrounding firearms. Today, it is used as an umbrella term to describe a range of different firearms that people perceive as being useful to warfare, regardless of whether they were actually used on or designed for the battlefield. How the expression is used today implies a distinct line between firearms made for the military and firearms made for the civilian market. However, that line for centuries has always been blurred.

21. Once firearms were developed, technology often advanced too quickly for common battlefield use, finding popularity in the civilian market. Military firearms in a general sense were limited by tactics, government bureaucracy, and expense, while civilian arms, until recently, were predominantly limited by individual budget. Additionally, civilian arms could be employed for far greater number of uses, including hunting, self-defense, and target shooting.

The earliest firearms technology appeared on the battlefield by the thirteenth century. The hand cannon, or handgonne, was little more than the name suggests, a cannon for your hands. The user utilized a touchhole and external fire source to ignite powder and fire the gun (**Exhibit C**). This primitive technology may not have been designed for a sporting purpose, but once it was designed, inventors pushed the boundaries, capabilities, and usages of firearms into the future. And while the hand cannon specifically may not have been used for sport, other military weapons of the time such as longbows and crossbows were popularly used for target shooting competitions in fairs during the Middle Ages.

22. The first true ignition system, the matchlock, was developed around 1400. This firearm, which utilized a burning match cord, was a popular military arm used for centuries around the world (**Exhibit D**). By the end of the 1400s, however, matchlocks and subsequent ignition systems also began appearing in early target shooting competitions (**Exhibit E**). Another example of a firearm being adopted for civilian use dates a century after the matchlock. In the first decade of the 1500s, a highly advanced handgun was developed, the wheellock. This gun, developed for use on horseback, was operated by the turning of a spring-loaded wheel (**Exhibit F**). While it saw some battlefield use, it was expensive and difficult to repair. As a result, it was used for specialized purposes on the battlefield in Europe, but not as much in the colonies. However, the technology was considered so advanced, some European countries made and used wheellocks for sport in the 1800s. Another example of superior technology being used by civilians rather than military is rifling. Rifling, the boring out of the inside of a barrel with spiral lands and grooves to spin a projectile, thus making it more accurate, was developed in the mid-1400s and appeared predominantly in civilian arms, with a few military exceptions in the

American Revolution, until improved developments in ammunition technology allowed it to be more commonly adopted on the battlefield by the mid-1800s (**Exhibit G**). Although in many instances, such as with the infantry, it was not until later in the nineteenth century that tactics caught up enough for rifling to be fully utilized.<sup>3</sup>

23. Before the ability to mass manufacture firearms, guns often were privately made by gunsmiths. Although armories existed in some form for centuries, there was significant cross pollination among gunsmiths, who did not work autonomously from one another. Rather, between the sixteenth through eighteenth centuries in Europe, the process of becoming a gunmaker was governed by guilds. These associations set rules about how to identify prospective students as well as create a standard for what they would be taught. As a result, ideas concerning the construction and decoration of firearms flowed freely throughout continental Europe. Another factor that allowed makers to emulate work was the widespread distribution of pattern books illustrating the latest fashions in arms in the years following 1640. Primarily produced in Paris, these books were eagerly sought after by makers throughout Europe and in the eighteenth century even made their way to the American colonies.<sup>4</sup>

24. Although two armories did exist in the United States around the time of the Founding Era, many guns for the battlefield were made or assembled by individuals or received via foreign aid. It is estimated that 2,500-3,000 gunsmiths worked in the colonies alone.<sup>5</sup> They, as private citizens, were responsible for making guns for both the military and civilians. While

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<sup>3</sup> Examples of rifled matchlocks do exist. Rifled wheellocks are far more common as they were so often used for hunting. Halbrook, Stephen. *America's Rifle: The Case for the AR-15*, pg. 101: "Around 1450, a German gunsmith cut spiral lands and grooves inside a gun barrel...such guns were called riffeln"

<sup>4</sup> Information from the exhibition narrative. Houze, Herbert G. Co-Curator. "Art of the Hunt: Decorated European Sporting Arms from 1500-1800." Exhibition. Houston Museum of Natural Science, 2019.

<sup>5</sup> Moller, George D. *American Military Shoulder Arms: Volume 1*. University of New Mexico Press, 2011. P.107



the standard infantry arm during the American Revolution was a smoothbore (no rifling) musket, there were some regiments during the War that used a common civilian firearm at the time, the American long rifle (**Exhibit H**). The long rifle was a modified design from the German jaeger (hunting) rifle that tended to have a longer barrel and a smaller caliber than its German counterpart. This civilian rifle was the far superior firearm in terms of accuracy compared to the inaccurate military smoothbore musket. However, because of the type of projectile employed at the time – a round musket ball – the process to load was slower for rifles because the ball had to fit snugly within the lands and grooves of the rifling, therefore it was not feasible for expansive military adoption.<sup>6</sup> Examples of long rifles, however, were made with two barrels that would swivel to compensate for that limitation (**Exhibit I**).<sup>7</sup> The long rifle in the colonies served as a multi-purpose tool. It was capable of being used for hunting, self-defense, and target shooting. Important to note though that unless being made for large-scale military adoption, such as the smoothbore musket, and/or produced with the use of parts kits ordered from overseas, civilian arms could be made at the request of individuals or in small runs.

25. Target shooting was a part of American culture before the formation of the United States with colonists taking part in competitions known as “Rifle Frolics.” In fact, David Ramsay in his “History of the American Revolution” (1789) spoke about the Battle of Bunker Hill (1775). He wrote, “None of the provincials in this engagement were riflemen, but they were all good marksmen. The whole of their previous military knowledge had been derived from

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<sup>6</sup> Until the development of a successful conically shaped bullet (rather than a round musket ball) by Claude Etienne Minie and modified by James Burton at Harpers Ferry, rifling was expensive and slow to load. For a round ball to effectively spin in rifling, it had to fit perfectly which slowed the loading process. However, it was perfect for target shooting as well as hunting and specialized military use. Since tactics by the military were still shoulder-to-shoulder fighting, accuracy was not of prime importance, so militaries used smoothbore (unrifled) barrels for their standard equipment.

<sup>7</sup> Examples can be found in the Cody Firearms Museum.

hunting, and the ordinary amusements of sportsmen. The dexterity which by the long habit they had acquired in hitting beasts, birds, and marks, was fatally applied to the destruction of the British officers.”<sup>8</sup> This tradition has continued throughout American history, especially after the Civil War. For example, the National Rifle Association was founded by Union officers in 1871, and its core purpose was “to promote and encourage rifle shooting on a scientific basis.” What resulted was the proliferation of international shooting competitions.<sup>9</sup> Another example is the Olympic sport of Biathlon, a sport which involves both skiing and target shooting, dating to 1767 in Europe. It was initially created for government use in places like Norway. That purpose persisted for centuries, even after becoming an international sport. In the 1930s, Finnish troops still used skis and rifles for patrol. Until recently, the firearms used in Biathlon and other disciplines of the shooting sports, often used modified versions of centerfire NATO cartridge firearms (**Exhibit J**).<sup>10</sup> By the nineteenth century, progress on manufacturing processes allowed more firearms of more varieties to be available to the U.S. government as well as civilians. Many repeaters of all sorts produced during this century came in specific models indicating sporting vs military variants.<sup>11</sup>

26. The line between military and civilian arms was certainly blurred at the founding of the country. While the military, as previously referenced, sometimes utilized superior civilian arms, civilians could also possess guns that were traditionally associated with the military, such

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<sup>8</sup> Halbrook, Stephen. *The Founders of the Second Amendment: Origins of the Right to Bear Arms*. Pg. 96-97

<sup>9</sup> The National Rifle Association of America was founded after the National Rifle Association in the United Kingdom (1859).

<sup>10</sup> <https://home.nra.org/about-the-nra/> Accessed June 15, 2023

<sup>11</sup> An example of a centerfire modified firearm can be found in the Cody Firearms Museum.

<sup>11</sup> Flayderman, Norm. *The Flayderman's Guide to Antique American Firearms...and their Values*. 9th Ed (2019). This book is considered the gold standard in the evaluation of antique American made firearms. It provides not only firearms organized by manufacturer but also by type, such as repeater, sporting, military etc. Here is just one example: pgs. 694-695

as cannons.<sup>12</sup> That blurred line also extended to the role of the civilian and soldier. In the colonies and in early America, certain citizens were required to serve in their militias with firearm and ammunition requirements and some soldiers carried their personal firearms into battle. By the American Civil War, it was not unheard of for soldiers to privately purchase firearms that the U.S. government had not adopted or did not issue to them for use in battle. After the war, even military issue weapons that were used in war were often sold on the civilian market. After the Civil War, soldiers could buy their firearms and many dealers and distributors sold the surplus in mass in their catalogs or at stores for even lower prices. According to Springfield Armory National Historic Site, “many thousands [of] cheap surplus weapons were released into private hands through General Orders 101, providing rifles, pistols, carbines, and muskets that found their ways into the hands of Americans in the decades following the Civil War.”<sup>13</sup> The tradition of selling military arms to civilians continues today with firearms such as the Springfield Model 1903 bolt action rifle and even with semi-automatics such as the M1 Garand rifle, the M1 carbine, and the Model 1911 pistol.<sup>14</sup>

27. To summarize, there has always been an ebb and flow of civilian and military firearms for centuries, some with clearer lines than others. It is unfair to suggest that historically a gun at the time of its use would have been completely understood as only for war or sport because there was such interchangeability.

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<sup>12</sup> Moller, George D. *American Military Shoulder Arms: Volume 1*. University of New Mexico Press, 2011. P.107

<sup>13</sup> Springfield Armory details this information here <<https://www.nps.gov/spar/learn/historyculture/a-springfield-rifle-musket.htm>> Accessed June 15, 2023

<sup>14</sup> Today, postwar weapon surplus guns including several semi-automatic firearms such as the M1 Garand are sold through the Civilian Marksmanship Unit <<https://thecmp.org/sales-and-service/1911-information/>> <<https://thecmp.org/sales-and-service/services-for-the-m1-garand/>> Accessed June 15, 2023

28. **Timeline of Major Inventions.** This timeline is not comprehensive of every major incremental development in firearms and ammunition history; however, it highlights the evolution in technology relevant to this case. Importantly, many of the greatest technological leaps occurred in the first three hundred years of development, with the initial invention of many technologies that are still employed in modern firearms. Later innovations, even into the mid-twentieth century, have tended to be more gradual refinements.<sup>15</sup> Terms in bold that are not defined in the terminology section can be found in **Exhibit B**.

- Ca 1000: Invention of the **Fire lance**.
- 1267: English academic, Roger Bacon records **gunpowder**. Note: Gunpowder recipes and use predates this in China by centuries
- Ca 1280s **Hand cannons** were in use in China (surviving example exists)
- 1300s: The earliest examples of **breechloaders** appear in large guns that are set up on a device to swivel.
- Ca 1400: The appearance of the first true ignition system, the **matchlock**
- 1450: **Rifling** is invented
- Ca 1500-1510: The **wheellock** is invented.
- 1620-1625: True **flintlock** is invented.
- Ca 1640: Bayonets are introduced.
- Ca 1680: The first known **revolver** is created, and the cylinder is self-rotating.
- 1714: English ordnance begins buying uniformed parts for muskets
- 1718: The Puckle gun is invented. It is a flintlock revolving cannon patented by British inventor, lawyer, and writer James Puckle
- 1730s: American **long rifles** were made by German immigrants.
- 1774: Patrick Ferguson invents a **breechloading** flintlock rifle
- 1791: Ratification of the Second Amendment
- 1800: Discovery of Fulminates by Edward Charles Howard that will be used in **percussion** ignition firearms.
- 1808: Early form of self-contained cartridge is invented by Jean Samuel Pauly
- 1811: John Hall patents a **breechloading** rifle – a key step in the evolution of interchangeable parts
- 1818: **Percussion cap** is invented; Wheeler and Collier flintlock revolver is ordered in bulk.
- 1825: **Percussion** ignition becomes more common; Johann von Dreyse experiments with his needle gun (an early **bolt action**)

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<sup>15</sup> This timeline was drawn largely from the one organized, reviewed, and exhibited at the Cody Firearms Museum.

- 1829: True **centerfire** is invented by Clement Pottet
- 1835: Colt's first **revolver** patent in England; 1st telescopic sight (Morgan James out of Utica, NY)
- 1846: Claude Etienne **Minie** develops successful conically shaped projectile
- 1847: Walter Hunt patents a tubular **magazine**
- 1854: Smith & Wesson patent the **lever action**
- 1855: Rollin White patents a box **magazine**
- 1857: **Rimfire metallic cartridges** are developed by Smith & Wesson
- 1860: Spencer repeating rifle and Henry **lever action** rifle is sold
- 1862: Gatling Gun is patented
- 1864: Robert Wilson patents a detachable **magazine**
- 1865: Springfield armory designer Erskine Allin converts rifled muskets to **breechloaders**; Winchester becomes its own company
- 1873: Colt introduces their Model 1873 **single action revolver**
- 1877: Colt introduces their **double action revolver**
- 1884: **Smokeless powder** invented; **slide action** is popularized
- 1885: Hiram Maxim develops a **machine gun**
- 1886: **Box magazine** on the Mannlicher **bolt action**
- 1893: **Semi-automatic pistol** with detachable **magazine** introduced by Hugo Borchardt
- 1895: Colt Browning **machine gun** invented
- 1898: Antique Firearms Cutoff date – firearms, other than machine guns made before 1898 are not federally firearms. This designation was established by the Gun Control Act of 1968
- 1899: Arthur Savage begins selling lever actions with rotary **magazines**
- 1902: Hiram Percy Maxim invents the **silencer**
- 1905: John Moses Browning's Model 1905 is important development in what becomes the Colt Model 1911, chambered in his designed caliber the .45 ACP
- 1918: Browning **Automatic Rifle** and Thompson **submachine gun** are developed
- 1934: The National Firearms Act
- 1936: Adoption of the M1 Garand **Semi-automatic rifle**
- 1942: M1 Carbine adopted with the .30 M1 carbine cartridge
- Ca 1944: The STG 44 becomes the 1st production **assault rifle**.
- 1951: AKM **assault rifle** enters service
- 1956: Eugene Stoner develops the AR-10, Jim Sullivan refines it to become the AR-15
- 1959: Armalite sells rights to Colt to produce AR-15
- 1964: M16 adopted by US Military; Colt delivers AR-15s to the commercial market
- 1968: Gun Control Act
- 1970: HK VP 70; 1st **semi-automatic** polymer pistol released
- 1986: Glock **semi-automatic** polymer pistol is sold in United States; Hughes Amendment

### **III. 600 YEARS OF HISTORICAL DEVELOPMENT OF FIREARM TECHNOLOGIES GENERALLY ASSOCIATED WITH ASSAULT WEAPONS BANS AND MAGAZINE LIMITATIONS**

29. There are many terms used to define rifles, pistols, and shotguns regulated in assault weapons (firearms) bans. Regardless, the technologies banned by the statutes represent incremental change in technological innovation over the past 600 years.

30. **General History of Repeaters.** As will be seen below, New Jersey's legal limit of ten rounds in an ammunition magazine is historically arbitrary, particularly for the time frame being discussed.<sup>16</sup> The capacity for repeaters and magazine-fed repeaters were not fixed to one number, rather the number was constantly changing depending on design. Even model variations, such as a Winchester Model 1866, feature a range of different capacities based on the size of the magazine, the barrel, the caliber etc. Therefore, a ten-round ammunition capacity is not notable historically. As previously mentioned, I define a repeater as a firearm of any type that can fire multiple rounds before having to manually reload.

31. The concept of a repeater dates to the earliest technology of firearms. Hand cannons even came in multi-barrel variations (**Exhibit K**). While some repeaters were employed on the battlefield, they would not be widely popular for use in war until the late nineteenth century. That did not mean, however, that innovation in repeating technology was stymied. In fact, it was quite the opposite. Without the confines of wartime tactics and budget, many repeating firearms were commissioned by civilians who utilized them. The simplest method of

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<sup>16</sup> The federal government itself did not make this distinction until the 1990s. This date is referencing the Public Safety and Recreational Firearms Use Protection Act (1994). Additionally, there are many resources that can showcase the number of repeaters available in this time frame in the United States, but the place that aggregates them the best is Flayderman, Norm. *The Flayderman's Guide to Antique American Firearms...and their Values*. 9th Ed.

producing arms capable of firing more than one round without manually reloading initially was to fit a firearm with more than one barrel. However, due to weight limitations, gunmakers began experimenting with other means of producing repeating arms during the sixteenth century. One of the first methods attempted involved superimposed loads, which were successive charges of powder and ball on top of each other that were separated by wadding or the projectile itself in one barrel. They were fitted with locks that either had multiple cocks and pans or a single lock that could slide upon a rail. One such example was a sixteen-shot firearm made in 1580 (**Exhibit L**).<sup>17</sup>

32. By the 1630s, a Dutch gun making family, Kalthoff (also spelled in some sources, Calthoff), began experimenting with a design that allowed up to fifteen shots to be fired in rapid succession. It utilized a tubular magazine located in a pistol or rifle stock to hold powder and balls (**Exhibit M**)<sup>18</sup> This system was so innovative it was reproduced and modified for over 150 years. According to late historian Herbert G. Houze, “their longevity is perhaps best demonstrated by the fact that Admiral Horatio Nelson owned a repeating flintlock pistol of their basic design, as did President Thomas Jefferson.”<sup>19</sup> Also, by the mid-seventeenth century in Italy, other magazine-fed repeaters were being developed. According to the Royal Armouries (Leeds), an early example can be found at the Musée de l'Armée which was made by Giacomo Berselli of Bologna in the late 1660s.<sup>20</sup> However, more well-known is the Lorenzoni of

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<sup>17</sup> This firearm was on display at the National Firearms Museum’s location in Missouri. Winant, Lewis. “A 16-Shot Wheel Lock,” *America’s 1st Freedom* (2014).

<sup>18</sup> Houze, Herbert G. Co-Curator. “Art of the Hunt: Decorated European Sporting Arms from 1500-1800.” Exhibition. Houston Museum of Natural Science, 2019.

<sup>19</sup> Ibid

<sup>20</sup> For more information, visit: <https://royalarmouries.org/stories/our-collection/the-christmas-connection-to-captain-souths-lorenzoni-pistol-our-collection/> Accessed June 15, 2023

Florence. The firearm is a magazine-fed repeater that came in pistol and rifle form. This design was copied and modified by numerous designers after its invention with various configurations and magazine capacities (**Exhibit N**). In addition to magazines, revolving technology was also being developed during this time. The Dafte revolver, for example, had a “single fixed barrel mounted to a central arbor upon which a cylinder of chambers rotates.” (**Exhibit O**)<sup>21</sup>

33. In 1722, Boston designer John Pim demonstrated a firearm that was alleged to have been “loaded but once” and “discharged eleven times following with bullets, in the space of two minutes.”<sup>22</sup> Additionally, a Boston gunsmith named Samuel Miller advertised for a twenty-shot repeater.<sup>23</sup>

34. In 1724, another designer Emmanuel Wetschgi of Augsburg advertised his flintlock magazine firearm in a handbill (**Exhibit P**). According to Houze:

“Not only did he describe his design’s advantages and the ease with which it could be used, he also included an engraving showing one of his pistols being fired. This image, which is believed to represent Christian III, Count Palatine of Zweibrucken with the inventor by his side holding a sporting gun built on the same system...More importantly, it also incorporates what may be the first true advertising slogan...’What other pistols can shoot multiple rounds on one loading as accurately, rapidly, and as far, as today’s Wetscghi?’”<sup>24</sup>

35. Another example of the Lorenzoni style was a firearm designed by British gunsmith, John Cookson in the late seventeenth century (**Exhibit Q**). A gunmaker in Boston, also named John Cookson – it is not clear if this person was the same Cookson from England, a

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<sup>21</sup>Ferguson, Jonathan. “An Important Early Self-Rotating Revolver c. 1680, possibly by John Dafte.” *The Antique Arms Fair at Olympia London*. Pg. 30

<sup>22</sup> Kopel, David and Joseph Greenlee. “The History of Bans on Type of Arms before 1900.” *Journals of Legislation*, page 38 (Forthcoming 2024)

<sup>23</sup>Ibid, 38

<sup>24</sup> Houze, Herbert G. Co-Curator. “Art of the Hunt: Decorated European Sporting Arms from 1500-1800.” Exhibition. Houston Museum of Natural Science, 2019.



relative, or a coincidence – published an ad in the *Boston Gazette*, in 1756, advertising a nine-shot repeating firearm (**Exhibit R**). Around the same time a Cookson-type twelve-shot repeater was made by gunmaker John Shaw.<sup>25</sup> Another example from the 1750s in America is the Belton repeating fusil. This gun was invented by Joseph Belton around 1758 (**Exhibit S**). Not a magazine repeater like the Lorenzoni, the Belton utilized superimposed loads. Notably, he petitioned the Continental Congress during the American Revolution to adopt his firearm. In 1777, Belton showcased a musket that shot sixteen rounds at once in front of General Horatio Gates, Major General Benedict Arnold, and scientist David Rittenhouse. The observers wrote on July 10, 1777:

“Having Carefully examined M. Belton’s New Constructed Musket from which he discharged Sixteen Balls loaded at one time, we are fully of Opinion that Muskets of his Construction with some small alterations, or improvements might be Rendered, or great Service, in the Defense of lives, Redoubts, Ships & c. & even in the Field, and that for his ingenuity & improvement he is Intitled to a handsome reward from the Publick.”<sup>26</sup>

36. The Continental Congress ordered one hundred Belton firearms for use in the Continental Army. However, this order was canceled. Surviving and modified examples of the Belton design were made by his partner in the 1780s, including artifacts at the Royal Armouries in Leeds, that include a detachable magazine variation. One also has a sliding spout meant for port fire – a slow-burning ignition system. When locked into place, the user would essentially ignore the main trigger, frizzen, and cock and just pull the lock backwards one stage at a time, making the firearm, while not strictly a semi-automatic, have a similar rate of fire to that of a

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<sup>25</sup> An example of this firearm can be found in the National Firearms Museum <<https://www.nramuseum.org/the-museum/the-galleries/the-road-to-american-liberty/case-22-the-paper-cartridge/cookson-volitional-repeating-flintlock.aspx>> It is also discussed here in this site linked directly from the Royal Armouries: <<http://firearmshistory.blogspot.com/2014/02/the-cookson-repeater.html>> Accessed June 15, 2023

<sup>26</sup> Kopel, pg. 38

double action.<sup>27</sup> Around 1779, the Girardoni (also spelled Girandoni) air rifle was developed. It was a repeating arm that could fire twenty-two rounds from a tubular magazine (**Exhibit T**).<sup>28</sup> The magazine itself was quick to reload with the help of speed loading tubes. Speed loading tubes or speed loaders are essentially a device through which you can load ammunition quickly into a magazine or a firearm. There are several ways this can be employed. Additionally, the Girardoni could fire forty rounds before needing air to be pumped again.<sup>29</sup> The Girardoni was used by Meriweather Lewis on the Lewis and Clark Expedition (1804-1806). Over 1,000 Girardonis were made for service with the Austrian military, but light weight examples were allegedly produced in sporting variations.<sup>30</sup> This design also was copied by gunmakers around the world.<sup>31</sup>

37. Around the ratification of the Second Amendment, other repeaters were being developed throughout the world, including multi-barrel firearms in which all barrels could fire at once, such as the Nock Volley gun and Duck's Foot pistol (**Exhibit U**).<sup>32</sup> There is also a surviving example of a firearm commissioned by an individual around the end of the 1700s. It is

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27 The Royal Armouries has two of these detachable magazine Belton repeaters. It can be seen here: < <https://www.youtube.com/watch?v=wOmUM40G2U> > Accessed June 15, 2023. The description of the operation of fire is from a conversation with Keeper of Arms, Jonathan Ferguson.

28 Kopel, David. "The History of Firearms Magazines and Magazine Prohibitions." Albany Law Review, Vol. 88, 2015, pg. 853

29 Kopel, David & Joseph G.S. Greenlee. "The History of Bans on Types of Arms before 1900. Pg. 40.

30 For more information on Lewis and Clark and the Girardoni, the most comprehensive research on the Girardoni air rifle was done by scholar Michael Carrick. His research is footnoted in this summary article of the Lewis and Clark firearms that can be found here:

<[http://www.westernexplorers.us/Firearms\\_of\\_Lewis\\_and\\_Clark.pdf](http://www.westernexplorers.us/Firearms_of_Lewis_and_Clark.pdf)> Accessed June 15, 2023. Additionally, Ian McCollum, one of the foremost authorities on firearms technology in the United States, has done several videos and articles about the firearm. This is one article he wrote

<<https://www.forgottenweapons.com/rifles/girandoni-air-rifle/>> Accessed June 15, 2023. A surviving example of a Girardoni can be found:

<<https://www.nramuseum.org/guns/the-galleries/a-prospering-new-republic-1780-to-1860/case-8-romance-of-the-long-rifle/girandoni-air-rifle-as-used-by-lewis-and-clark.aspx>> Accessed June 15, 2023, Rock Island sold a sporting variation in 2018:

<<https://www.rockislandauction.com/detail/75/3293/girandoni-system-repeating-air-gun>> Accessed June 15, 2023

31 An example of a Russian copy of a Girardoni Rifle can be found in the Cody Firearms Museum

32 An example of the Duck's Foot Pistol can be found here: <<https://www.recoilweb.com/ducks-foot-pistol-old-school-172784.html>> Accessed January 31, 2023. An example of the Nock Volley Gun can be found here by British scholar Matthew Moss

<https://armourersbench.com/2020/01/12/nock-volley-gun/> Accessed June 15, 2023

a fourteen-barrel double Nock volley gun style rifle. Each set of seven barrels has its own lock plate and trigger. To better facilitate loading, the firearm came with a speed loader that allowed the user to pour the charge into a small device that the user could then pour down seven barrels simultaneously. This firearm was a sporting arm. To facilitate accuracy at such a large size, it has a hand rest forward of trigger, under the barrels. In the event the user only wanted to use one set of seven barrels, he had a replaceable stock made with one lock plate and trigger.<sup>33</sup> In America, Joseph Gaston Chambers devised a repeating musket that could fire, according to him, twenty rounds a minute (**Exhibit V**). He approached the U.S. War Department in 1792 with his invention. The Secretary of War, Henry Knox, was interested in finding a firearm that would supply more power and requested that one of Chambers' firearms be acquired for testing. A demonstration was set up at Alexander Hamilton's "Seat" on the Schuylkill.<sup>34</sup> Furthermore, Chambers petitioned Thomas Jefferson for help spreading the word of his invention. To which Jefferson referred him to the U.S. Patent Office.<sup>35</sup> His invention was not adopted initially with concerns for structural stability, but his repeating muskets, pistols and seven-barreled swivel guns were adopted by the U.S. Navy and Pennsylvania for the War of 1812. Between September 1813 and September 1814, Philadelphia arms makers would produce at least fifty-three seven-barreled swivel guns that could fire two-hundred bullets a piece, two hundred repeating muskets, and one hundred repeating pistols. Outside of the United States, European countries were also

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33 McCollum, Ian. *Forgotten Weapons*: <<https://www.youtube.com/watch?v=ivdlcHUwaEw>> Accessed June 15, 2023

34 Fagal, Andrew J.B. "The Promise of American Repeating Weapons, 1791-1821." *Age of Revolutions*. Fagal is the Associate Editor at Princeton University's Papers of Thomas Jefferson. <<https://ageofrevolutions.com/2016/10/20/the-promise-of-american-repeating-weapons-1791-1821/>> June 15, 2023

35<<https://founders.archives.gov/?q=Joseph%20chambers%20burst&s=1111311111&sa=&r=1&sr=>>> Accessed June 15, 2023

interested in his inventions.<sup>36</sup> Another repeater designed in 1821 was known as the Jennings repeating flintlock. It was capable of firing twelve rounds before having to reload (**Exhibit W**).<sup>37</sup>

38. The foregoing demonstrates that numerous types of repeating firearms existed leading up to, around, and directly after the time of the ratification of the Second Amendment, which in some cases, had direct ties to Founding Fathers. As was typical of the era, these were often made by private gunsmiths and sometimes individually commissioned. During the Founding Era and after, unless employed for military purposes with the need for quantity, firearms at large were not produced in volume as they would have been by the late nineteenth century after great shifts in the industrial era. We also know that Americans were likely aware of various European innovations, since surviving examples in America are sometimes modeled after those firearms, from the simple musket that supplied much of the US military during the American Revolution to repeaters such as the Cookson, following a Lorenzoni magazine style. Overseas travel and the exchange of information was also common. For example, as Minister of France, Thomas Jefferson traveled overseas in the 1780s, where he learned about the concept behind interchangeable parts. Notably, even to some of the less successful firearms designs with flaws, imperfections, and issues, it is interesting that while the Founding Fathers were aware of them, manufacturers could continue to produce those designs, to my knowledge, without regulations, unlike the fire safety laws that were enacted to regulate gunpowder.

39. It is also interesting to note that the reason we are aware of these firearms, in most cases, is that examples have survived thanks in large part to museums and private collectors. In fact, gun collecting dates to the 1600s. While the earliest firearms collector is

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<sup>36</sup> Fagal

<sup>37</sup> Flayderman, Pg 683

credited to be King Louis XIII of France, firearms were not only owned by royalty or the aristocracy. For example, in 1666, according to Houze, it was recorded that the merchant, Alexandra Delamarre, had put together a collection numbering some thirty pieces. Gun collecting continued to grow ever more popular during the eighteenth century and some truly large collections were assembled. For example, one collector, Joseph von Dufresne of Munich, Germany, at the time of his death in 1768 possessed 277 pistols, 457 long arms, plus crossbows and other items.<sup>38</sup> Even in the colonies, estate sales featured repeating firearms, including an advertisement from South Carolina (1736) (**Exhibit X**).<sup>39</sup>

40. Importantly, this meant that those of the Founding Era were aware of significant innovations in firearms technology over time and it's reasonable to expect that innovation to continue into the future – the most notable example being the major difference in technology between the military smoothbore muskets used by most soldiers during the American Revolution and the far more advanced American long rifles owned by the American colonist during that same time frame.

41. Prior to the American Civil War, there were many makers and manufacturers of repeating firearms, however, the tradition of individual gunmakers was still prominent. As manufacturing processes advanced, these concepts evolved into more standard repeaters produced in greater quantities. The transition of firearms being made by private gunmakers increasingly shifted to factories by the mid-nineteenth century. Inline manufacturing, interchangeable parts, and mass production impacted not only the types of firearms that were

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<sup>38</sup> Houze, Herbert G. Co-Curator. "Art of the Hunt: Decorated European Sporting Arms from 1500-1800." Exhibition. Houston Museum of Natural Science, 2019

<sup>39</sup> The South Carolina Gazette. Number 125. June 19, 1736.

available, but also quantity and quality. While repeating firearms, magazine-fed or not, exceeded ten-rounds centuries prior, the number of distinct types of repeaters in general by the middle of the nineteenth century was staggering.

42. With these industrial changes, repeaters continued to evolve as they had for centuries. Around 1814, another step in revolving technology appeared with the Collier flintlock (later percussion) revolving rifles, pistols, and shotguns (**Exhibit Y**). Decades later, pepperbox pistols, a revolving pistol with multiple barrels that were manually rotated on a central axis, were popular in the United States by the 1830s, some were even taken out west with California gold miners (**Exhibit Z**). One maker of pepperboxes alone, Ethan Allen, between the 1840s and 1850s made over forty variations of this style of firearm.<sup>40</sup> While many pepperbox pistols typically fired four to six shots, some were capable of firing twelve, eighteen, or twenty-four rounds.<sup>41</sup> It becomes difficult to quantify the number of repeaters on the market though because makers were so plentiful. In 1836, a year before Samuel Colt's first patent in England of his revolving mechanism, the patent process was standardized through the United States Patent Act. That year, Samuel Colt took out two patents for five or six-shot revolving rifles and pistols (**Exhibit AA**). As a result, he essentially owned the legal right to produce the revolver until the patent expired in the mid-1850s. This Act created a flurry of production, innovation, and design especially towards repeaters and magazines to varying degrees of success. The fact though that so many people were trying to design the next great repeater shows the desire to capitalize on this technology.<sup>42</sup> It should be noted, however, that while 1836 was an important year, the

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<sup>40</sup> Flayderman, pg. 56-61

<sup>41</sup> Kopel, pg. 854. Additionally, pinfire pistols and long guns can be found in museum collections with capacities greater than ten rounds.

<sup>42</sup> Examples of these patented repeaters include Volcanic lever actions, the Jarre Harmonica pistol and rifle, Porter and Genhart turret rifles,

recognition of the importance of patents to support technological innovation dates to the Constitution (See Article I; Section 8). As Secretary of State, Jefferson himself was involved in the earliest patent process. All this further demonstrates the expectation of the Founding generation that technological innovation was not only likely but to be encouraged.

43. Regardless of whether or not a design was successful that desire to innovate has always been present. One such attempt was in 1851, when Perry W. Porter developed a nine-shot repeating rifle and pistol that instead of a traditional cylinder as in Colt's design, the cylinder is seated in a way that the chambers point towards the shooter and anyone nearby (**Exhibit BB**).<sup>43</sup> Another attempted design, in which a proof of concept prototype survives, is the Lindner patent of 1856, which is a rifle with a six-round cylinder and nine-round tubular magazine. The gun design could hold multiple magazines at a time that could extend the length of the barrel (**Exhibit CC**).

44. Successful innovations obviously did occur as well. Horace Smith & Daniel Wesson developed a self-contained metallic cartridge to pair with a revolver they designed and would sell when Colt's patent expired in the 1850s. The invention of their revolver coupled with a patent by designer Rollin White to have a bored through cylinder, allowing the revolver to be loaded from behind, greatly increased the speed of reloading the firearm (**Exhibit DD**). Additionally, in 1854, Smith and Wesson patented a lever action design called the Volcanic, which was based on a few earlier designs in the 1840s and would serve as the basis for the Winchester lever actions (**Exhibit EE**). This design would be modified by Benjamin Tyler

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Josselyn Chain Revolvers etc. More successfully were revolvers and repeaters by Smith & Wesson, Remington, Merwin & Hulbert, Henry, Winchester etc.

43 The 1837 Cochran turret rifle operated off a similar construct with a horizontally seated cylinder.

Henry into the Henry Model 1860 lever action rifle (**Exhibit FF**). The next iteration of lever action was the Winchester Model 1866 (**Exhibit GG**). The main innovation with this gun was Nelson King's Patent in May 1865, that allowed the firearm to be loaded from the receiver, a faster and superior design to Henry in which the user had to essentially load the tubular magazine from the muzzle.

45. Winchester was not the only manufacturer of repeating firearms in the mid to late nineteenth century. Other companies were producing competitive repeaters, such as the Evans Repeating Rifle, which was made between 1873 and 1879. Approximately, 12,200 were made and they came in three variations, Sporting (approximately 4,350 made), Military (approximately 3,200), and Carbine (not specified as either sporting or military, approximately 4,700 made). The Evans held magazine capacities at twenty-eight, thirty-four, and thirty-eight rounds (**Exhibit HH**)<sup>44</sup> The Evans as well as other companies such as the Spencer Repeating Rifle, Fogerty Repeating Rifle, Adirondack Firearms, Bullard Repeating Arms, Burgess Gun, and the Whitney Arms Companies also were making repeaters. However, some names are lesser known, partially because Winchester realized the value in their designs and the threat of them as a competitor, so they acquired the companies.<sup>45</sup> Other major manufacturers, such as Marlin, quickly popped up as well by the 1890s as a direct competitor to the Winchester lever action as did Savage firearms, including the Model 1899, equipped with a rotary magazine (**Exhibit II**). In all, there were over one hundred manufacturers or makers in the United States alone producing some type of

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<sup>44</sup> Flayderman, pg. 694-695

<sup>45</sup> An entire exhibit at the Cody Firearms Museum is dedicated to the many repeating arms companies that Winchester acquired. Examples are archived in the Winchester Arms Collection.



repeating firearm leading up to and decades after the Civil War.<sup>46</sup>

46. The experimentations in design ultimately led to incremental improvements on repeating technology, culminating in the design of automatic and semi-automatic technology. Automatic technology operation involves pressing a trigger to fire continuously until the user releases the trigger, the firearm runs out of ammunition, or the firearm malfunctions. Semi-automatic operation involves pressing a trigger to fire one round, eject a spent case, and load another to be fired on the next trigger pull. Today, most firearms are semi-automatic rifles, pistols, or shotguns. Semi-automatic technology was developed in the 1880s around the same time as automatic technology. Mannlicher is generally attributed to creating the first semi-automatic rifle, although his initial design was far from successful; handguns followed shortly after. The first mass produced semi-automatic pistol was the Hugo Borchardt designed C-93 with detachable eight-round magazine (**Exhibit JJ**). The Mauser C-96 (**Exhibit KK**) followed, as did John Moses Browning's Model 1899/1900 pistol, which by 1905 would serve as the basis of the iconic Colt Model 1911 semi-automatic pistol (**Exhibit LL**).

47. **Features**. Assault firearm bans and magazine limitation statutes often concern themselves with firearm features, such as detachable magazines, various types of grips, barrel shrouds, and threaded barrels. These features themselves have their own long history as they have often served to mitigate side effects from shooting firearms, including aiding in stabilization and individualized fit, as well as flash and sound suppression, which historically have had purposes in both sport and defense.

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<sup>46</sup> Flayderman, Chapters V: A-F pages 50-299; Chapter VII: A, B, C Pages 351-387; Chapter VIII: A Pg458-524; Chapter XIII pages 691-697; Chapter XV: pages 709-733

48. **Detachable Magazines.** As this Declaration has previously cited, magazines of many types existed as far back as the 1600s. They also come in many forms, such as tubular, box, rotary, etc. Within these subcategories, they can either be fixed or detachable. For example, more than half a century after Girardoni's tubular magazine, Walter Hunt received a patent for a fixed tubular magazine in the 1840s to pair with his invention, the Hunt Volitional rifle, which is the older direct ancestor to the Winchester lever action rifle (**Exhibit MM**).<sup>47</sup> On the other side, Christopher Spencer developed a tubular magazine in the butt stock that was detachable in 1860 (**Exhibit NN**). Beyond tubular magazines, there were other designs such as the Genhart turret rifle, from the 1850s, that had a detachable circular magazine with an externally visible shot/round counter and the Jarre Harmonica Pistol and Rifle with a detachable horizontally seated magazine that slides after each round is fired like a typewriter (**Exhibits OO & PP**)

49. In terms of box magazines specifically, Rollin White patented one in 1855 (**Exhibit QQ**).<sup>48</sup> A detachable version was patented in 1864 by Robert Wilson (**Exhibit RR**).<sup>49</sup> And a vertically stacked box magazine was patented by James Paris Lee in 1879 which was applied to several rifles including the Mannlicher Model 1886 bolt action rifle (**Exhibit SS**).<sup>50</sup> Even the earliest semi-automatic handguns utilized either fixed or detachable magazines. The Mauser C-96 had a fixed one, and the Borchardt C-93 detachable.<sup>51</sup>

50. **Grips/Barrel Shroud.** The concept of a stabilizing entity to help not only simply hold the firearm but also do so with maneuverability and accuracy dates to the earliest arms and

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<sup>47</sup> Hunt, Walter. US Patent 6663A (1849)

<sup>48</sup> White, Rollin. US Patent No 12648 (1855)

<sup>49</sup> Wilson, Robert. US Patent No 45105 (1864)

<sup>50</sup> Lee, James Paris US Patent No 221328 (1879)

<sup>51</sup> Kopel, 857 referencing *Standard Catalog of Firearms*. (2014), Gun Digest Books, pg. 708-709

sporting guns. For example, early target shooting competitions relied on it. Schuetzen, a sport dating to the 1600s that continues today, incorporates elaborate molded cheek pieces and palm rests. German Frei pistol of the nineteenth and twentieth centuries, essentially do the same. While these customizations may not fit the typical definition of a pistol grip or thumbhole stock, the intent is similar (**Exhibit TT**)

51. The simplest form of a stabilizing device is the *barrel shroud*, which is essentially just a forearm. The purpose of a barrel shroud is to prevent “burning the bearer’s hand.” By that definition, any firearm with a full-length stock has a barrel shroud, such as an eighteenth-century Brown Bess or early single shot pistols.

52. Stock design in and of itself necessities a *pistol grip*. These grips date to the 1700s. When taken literally, single shot flintlock and later percussion pistols sometimes would have the option to attach a removable stock. When assembled pistols become long guns and the grip from the pistol serves as the stabilizing device. This trend of detachable stocks continued with repeating arms, including several models of Colt revolvers, in the civilian and military market. Even semi-automatics such as the Borchardt C93 and Mauser C96 had detachable stock options. If a user did not have one of these models, universal holsters to convert a pistol to a rifle with a detachable stock existed (**Exhibit UU**). On firearms without detachable stocks, pistol grips appear on all variances of firearm actions. Standard rifles and shotguns would often have some sort of partial grip. Full pistol grips even made their way on machine guns by the end of the nineteenth century, including the Colt Model 1895, French Chauchat (1907) and several Maxim models. Submachine guns like the Thompson (1918) had them as well. Pistol Grips also appeared on other National Firearms Act firearms, outside of machine guns, such as Any Other

Weapons, like the Ithaca Auto & Burglar (1922), the Harrington & Richardson Handy-Gun (1921), and the Marble Game Getter (1908). The design continues to be used far into the twentieth century, including other semi-automatic firearms such as the M1A1 Paratrooper Carbine designed with not only a pistol grip but also folding stock (**Exhibit VV**).

53. *Forward grips*, on which the user holds a grip forward of the breech, have also been around since the late eighteenth century. The previously referenced fourteen-barrel firearm (ca 1795) has a forward grip. Additionally, another example is the French Magot rifle from the 1880s. Possibly one of the only copies of this gun is in the Cody Firearms Museum (**Exhibit WW**).

54. While not technically a grip, *thumbhole stocks* serve a similar purpose. It is more difficult to historically trace, but their regulation has had a deep impact on sporting and Olympic firearms in the modern era. Certain Olympic rifles feature thumbhole stocks, including several models of Winchester, dating to the 1950s. This type of concept or technology is a very prominent shooting sports feature.

55. **Folding/Telescoping Stock**. The Cody Firearms Museum has a folding stock snaphaunce blunderbuss that dates to between 1650-1700 (**Exhibit XX**). With early firearms, folding or adjustable stocks are not necessarily common because pieces in the civilian world were made by artisans prior to mass production. However, the appearance of detachable stocks – converting a pistol to a rifle/carbine – appear in the 1700s on flintlocks and continue to be incorporated on percussion, revolver, and semi-automatic guns. As guns were mass produced in scale, various models were often made, such as a Junior or Ladies rifle, to provide a different size option for the size or ability of the sport shooter. The flexibility of stock size in a telescoping

stock is very important in the civilian market where comfort and having firearms suited for the individual are preferable and feasible. In the early 1900s, and possibly earlier, consumers would be relegated to finding their correct stock size using Try Guns, which were carried by salesmen to allow the consumer to adjust the stock to fit them to see what size a given person needed. Two examples in the Cody Firearms Museum collection are the Winchester Model 12 and LC Smith Try Guns (**Exhibit YY**). Once an appropriate size was determined, the firearm would be made with a fixed stock. Folding stocks do make appearances in the military sphere with the M1A1 Paratrooper Carbine model as well as several submachine guns.

56. **Flash Suppressor/Threaded Barrel.** While the above concerns itself more with the fit of a firearm and how to stabilize it, other features exist to mitigate the negative side effects of shooting firearms.

57. Flash suppressors at their core are meant to reduce muzzle flash. The issue of a flash either giving away one's positions or temporarily distorting the vision of the user, dates to the earliest technology of firearms. Firearms, until the development of percussion ignition in the early nineteenth century, made use of an exposed flame at the breech of the gun. Hand cannons and matchlocks used burning matches to ignite gun powder inside the barrel. Wheellocks and flintlocks used pyrite and flint to create a spark. These technologies created a lot of smoke and flash which was a detriment to the user.

58. The modern concept of a flash suppressor appears on machine guns from World War I, including the Chauchat. The traditional flash hider on military arms, not classified as a machine gun, was used during WWII on guns such as the Lee-Enfield "jungle carbine" and has appeared on AR platform firearms, originally invented in the 1950s (**Exhibit ZZ**). Even the

invention of a sound suppressor, known legally as a silencer, by Hiram Percy Maxim in 1902 suppressed flash. Silencers were heavily marketed to the civilian population as target accessories.

59. Another method to contribute to the ease of shooting is a threaded barrel for several purposes, including the use of a silencer, however, the concept dates back much further. An early idea of a quick attachment system in or on a barrel of a gun is the bayonet. Developed in the sixteenth century, the bayonet was commonly used for both military and civilian firearms. There have been a variety of muzzle devices that have been attached to a barrel (compensators, silencers, muzzle brakes, flash hiders etc.). While some early semi-automatic rifles, pistols, and shotguns had threaded barrels, the military did not always use threaded barrels for their suppressed firearms, nor did the civilian market. This is because Hiram Percy Maxim, the inventor of the Silencer, sold his silencer often with an adapter that allowed a silencer to be affixed without a threaded barrel, making the need for a threaded barrel or the thought that no threaded barrel would prevent the addition of a silencer moot.

#### **IV. CONCLUSION**

60. To summarize, this Declaration has looked at the long history of firearms around the world. It has looked at technologies specifically relevant to this case with a lens for their technical functions and their varied uses. One of the core takeaways from this report is the context of the interconnectivity between military and civilian firearms since the development of the first ignition system and why civilians have often had superior firearms. It also identifies major developments in firearm technology and establishes that some of the most significant changes in design occurred in the first few centuries, laying the foundation for most if not all modern firearms technology. Ultimately, firearms innovation is a continuum of gradual

advancements in technology. Over time, such incremental advancements have contributed to the increasing ability of individuals to operate their firearms effectively and safely.

I declare under penalty of perjury that the foregoing is true and correct. Executed within the United States.



ASHLEY HLEBINSKY

Dated: October 6, 2023

EXHIBIT “A”

EXHIBIT “A”



**Exhibit A: Ashley Hlebinsky Curriculum Vitae**

Ashley Hlebinsky, President, The Gun Code, LLC  
2124 E Kerry Lane, Phoenix, AZ 85024  
Email: [theguncode@gmail.com](mailto:theguncode@gmail.com)  
Phone: 412-491-2493

**Education:**

Master of Arts, American History, University of Delaware, 2013

Bachelor of Arts, American History, University of Delaware, 2011

**Recent Honors/Awards:**

Second Amendment Foundation's Defender of the Constitution, 2022

National Shooting Sports Foundation and Women's Outdoor Media Association's  
Top Five Finalist, Top Woman of the Gun Industry, 2022

National Shooting Sports Foundation's SHOT Business's Top 40 under 40, 2020

Wyoming Business Report's Top 40 Under 40, 2017

National Shooting Sports Foundation & Professional Outdoor Media Association's  
Shooting Sports Communicator of the Year Award, 2017

Wyoming's Non-Profit Woman of the Year Nominee, 2017

**Selected Professional Experience:**

Co-Founder and Senior Fellow, University of Wyoming College of Law's Firearms  
Research Center, Laramie, WY, 2020 (Current)

Consulting Director, Craig Boddington Wildlife and Firearms Museum, Independence,  
KS, 2022 (Current)

Consulting Curator, LA Police Museum, Pasadena, 2021 (Current)

Senior Consulting Specialist. Cowan's Auctions, Cincinnati, OH, 2020 -2022

Consultant, National Museum of Law Enforcement and Organized Crime (Mob  
Museum), Las Vegas, NV, 2016 (Current)

Guest Curator, C.M. Russell Museums and Complex, Great Falls, MT 2021 (Current)

Adjunct Scholar of Firearms History, Technology & Culture, Firearms Policy Coalition, 2020-2021

Curator Emerita & Senior Firearms Scholar, Cody Firearms Museum, Buffalo Bill Center of the West, 2020 – 2021.

Robert W. Woodruff Curator, Cody Firearms Museum, Buffalo Bill Center of the West, Cody, WY, 2015-2020

Project Director, Cody Firearms Museum Renovation, Buffalo Bill Center of the West, Cody, WY, 2015-2019

Consulting Curator, Houston Museum of Natural Sciences, 2018

Consultant. Adirondack Experience. November 2019

Consultant. Winchester Mystery House, August 2019.

Consulting Scholar. National Park Service & Organization of American Historians, March 2019.

Consultant/Curator. Daniel Defense, Black Creek, Georgia. 2017

Associate & Acting Curator, Cody Firearms Museum, Buffalo Bill Center of the West, Cody, WY, 2015

Guest Curator. C.M. Russell Museums and Complex, 2015-2016

Guest Curator. Cody Firearms Experience, 2015

Assistant Curator, Cody Firearms Museum, Buffalo Bill Center of the West, Cody, WY, 2013-2014

Teaching Assistant, The Jewish Holocaust: 1933-1945, University of Delaware, 2013

Teaching Assistant, Introduction to Military History, University of Delaware, 2012

Teaching Assistant, History Education, University of Delaware, 2011

Researcher/Fellow, National Museum of American History, Smithsonian Institution, 2010-2013

Archival Assistant, University of Delaware Special Collection, 2010-2011

Firearm Intern, Soldiers and Sailors National Memorial Hall, 2008

**Expert Witness Testimony:**

Guardian Arms LLC et al v Jay Inslee, May 2023

Federal Firearms Licensees of Illinois v Pritzker, March 2023 (Barnett v Raoul)

Steven Rupp v Rob Bonta, January 2023

Oregon Firearms Federation, Inc et al v Oregon Governor Kate Brown et al, December 2022

Washington State v Federal Way Discount Guns et al, December 2022

Virginia Duncan et al v Rob Bonta, November 2022

Ocean State Tactical et al v Rhode Island, October 2022

Senate Judiciary Subcommittee on the Constitution, Stop Gun Violence: Ghost Guns, May 2021

Franklin Armory et al v Bonta, February 2021

FN Herstal v Sturm, Ruger & Co, January 2021

Sturm, Ruger & Co. v American Outdoor Brands Corp., October 2020

Guedes v BATFE, June 2019

Miller v Becerra (Bonta), November 2019

Regina (Nova Scotia) v Clayton, January 2019

Garrison v Sturm, Ruger & Company, Inc. 2018

**Selected Media Work:**

Writer/Producer. Mountain Men: Ultimate Marksman. History Channel, May 2022

(Current) Regular Contributor. *Our American Stories* Podcast, 2022

Co-Host. History Unloaded Podcast. Various platforms with Wyoming Public Media, 2018-2022, 6 seasons (Current)

Producer & On Camera Expert. *Gun Stories with Joe Mantegna*, Outdoor Channel, 2015-2022, 8 seasons (Current)

Producer & On Camera Expert. *Man vs History*, History Channel & Matador Productions, 2020 (aired 2021)

Co-Host. *Master of Arms*, Discovery Channel & Matador Productions, 2018. 1 season

Consulting Producer. *Brothers in Arms*. History Channel, 2018. 1 season.

On Camera Expert. *Rob Riggle: Global Investigator*. Discovery Channel, 2020.

Recurring Expert. *Mysteries at the Museum*. Travel Channel. 2017-2019

Casting Consultant. *Gun Shop Project*, Vice Media & Cineflix Productions, 2020

On Camera Expert. *American Genius Colt V. Wesson*. National Geographic. 2015

*Also appears on:* Public Broadcasting Service, National Public Radio, Travel Channel, National Geographic, Popculture.com, Media, Entertainment, Arts, worldwide (MEAWW), Women's Outdoor News, Outdoor Life, Shooting USA, Gun Talk Media, National Shooting Sports Foundation, various firearms related podcasts.

*Has been profiled by:* *The Bourbon Review*, *Recoil Magazine*, *Outdoor Life Magazine*, *Guns.com*, *Blue Press Magazine*, and others.

**Selected Lectures/Panels:**

Panelist. Asheville Ideas Fest. June 2023

Guest Speaker. Gun Rights Policy Conference, October 2022

Guest Speaker. Second Amendment Foundation Legal Scholars Forum, September 2022

Guest Lecturer and Panelist. AmmCon. Second Amendment Foundation, October 2021

Guest Lecturer. Armed for Revolution. Royal Armouries, September 2021

Guest Speaker. Preserving Firearms Heritage. Gun Rights Policy Coalition, 2020

Guest Lecturer. Art of Collecting. Nevada Museum of Art. January 2020

Panelist. Firearms and Museums in the 21<sup>st</sup> Century. National Council for Public History. March 2019.

Scholars Roundtable. Coltsville National Historic Site. Organization of American Historians & National Park Service, March 2019.

Forum Speaker. The Art of the Hunt: Embellished Sporting Arms in America. New Orleans Antique Forum, August 2018

Guest Lecturer. Unloading the Gun: Firearms, History, and Museums. Yakima Valley Museum, June 2018

Guest Lecturer. Perpetrators and Protectors: The Mob, The Law and Firearms, National Museum of Law Enforcement and Organized Crime (Mob Museum), September 2017

Organizer. Arsenals of History: Firearms and Museums in the 21<sup>st</sup> Century, Buffalo Bill Center of the West, July 2017

Lecturer. The Cody Firearms Museum, Arsenals of History Symposium, Buffalo Bill Center of the West, July 2017

Moderator. Addressing the Press: Firearms and the Media, Arsenals of History Symposium, Buffalo Bill Center of the West, July 2017

Moderator. Forming an Association: Legitimizing Firearms in Academic Study, Arsenals of History Symposium, Buffalo Bill Center of the West, July 2017

Guest Lecturer. Displaying the “Politically Incorrect,” C.M. Russell Museums and Complex, May 2017

Guest Lecturer. Displaying the “Politically Incorrect,” Blackhawk Museum, March 2017

Panelist. Curator Roundtable, Firearms and Common Law Symposium, Aspen Institute, September 2016

Guest Lecturer. Displaying the “Politically Incorrect,” Canadian Guild of Antique Arms Historians, April 2016

Guest Lecturer. The Cody Firearms Museum Renovation, American Society of Arms Collectors, September 2016

Guest Lecturer. From Protector to Perpetrator: Demystifying Firearms in History, Art Institute of Chicago, November 2015

Guest Lecturer. Winchester '73: The Illusion of Movie Making, Winchester Arms Collectors Association, July 2014

Guest Lecturer. Unloading the Six Shooter: Disassembling the Glamorization and Demonization of Firearms in the Arts, Buffalo Bill Center of the West, 2011

**Selected Firearms Exhibitions:**

Curator/Project Director. *Cody Firearms Museum Renovation*. Buffalo Bill Center of the West. 2019

Co-Curator. *The Art of the Hunt: Embellished Sporting Arms from 1500-1800*. Houston Museum of Natural Sciences. March 2019

Curator. *Glock Makes History: The Birth of the Polymer Handgun Market*. Buffalo Bill Center of the West. June 2016

Guest Curator. *Designing the American West: The Artist and the Inventor*. C.M. Russell Museum & Complex. February 2016

Curator. *The Greatest Gun Designer in History: John Moses Browning*. Buffalo Bill Center of the West. December 2015

Curator. *Journeying West: Distinctive Firearms from the Smithsonian Institution*. Buffalo Bill Center of the West. December 2015

Curator. *The Forgotten Winchester: Great Basin National Park*. Buffalo Bill Center of the West. June 2015

Curator. Western Firearms Gallery, including *Shoot for the Stars: The Tradition of Cowboy Action Shooting*. Buffalo Bill Center of the West. April 2015.

Curator. *Steel Sculptures: Engraving Individuality from Mass Production*. Buffalo Bill Center of the West. Winter 2014.

### **Certifications:**

Certified Firearms Instructor, Basic Pistol, 2016

Certified Firearms Instructor, Personal Protection Inside the Home, 2016

Well Armed Woman Instructor Certification, 2016

Museum Studies Certification, University of Delaware, 2013

### **Grants:**

National Endowment for the Humanities, 2017

Institute of Museum and Library Services, 2017

Gretchen Swanson Family Foundation, 2015, 2016, 2017, 2018, 2019, 2020

Kinnucan Arms Chair Grant, 2012

### **Fellowships:**

Firearms Curatorial Resident, Buffalo Bill Center of the West, 2013

Edward Ezell Fellowship, University of Delaware, 2012

Buffalo Bill Resident Fellowship, Buffalo Bill Center of the West, 2011

### **Committees and Memberships:**

Board Member – Walk the Talk America

Founding President – Association of Firearms History and Museums

- Academic association for the study of firearms history in United States

Founder – Arsenal of History Symposia Series

- First international symposia series on the academic study of firearms

Spokesperson – NSSF/AFSP Suicide Prevention and Project ChildSafe Programs

American Alliance of Museums – Member

American Society of Arms Collectors – Member

Winchester Arms Collectors Association – Honorary

Remington Society of Arms Collectors – Member

Weatherby Collector's Association –Life Member

### **Publication History**

Editorial Board – Armax Journal

### **Selected Articles:**

Author. "Guns and Mental Health." *Recoil Magazine*, Upcoming

Author. "Colt Single Actions and Safety." *Armax Journal*, October 2021

Author. "Guns and Partisan Politics." *Recoil Magazine*, January 2021

Author. "Feminism & Firearms." *Recoil Magazine*, Summer 2020

Author. "Burton Light Machine Rifle." *Recoil Magazine*. October 2019

Founder/Editor/Author. *Arsenals of History Journal*, Annual Publication, 2018 - Present

Author. "It's Complicated: The Short Answer to Firearms, Museums and History." *Journal of the Early Republic – The Panorama*, September 2018.

Contributor. "Firearms Curator Roundtable" *Technology & Culture Journal*, August 2018

Author. "Displaying the 'Politically Incorrect.'" *CLOG X Guns*: Chicago, IL, September 2017

Author. "Does History Repeat Itself? The Smith & Wesson LadySmith." *CLOG X Guns*: Chicago, IL, September 2017

Author. "Renovating the Cody Firearms Museum." *International Committee of Museums and Collections of Arms and Military History Magazine*. Issue 17, May 2017. Pg. 38 - 41

Author. "Renovating the Cody Firearms Museum." *American Society of Arms Collectors Journal*. Fall 2016.

Author. "Glock Exhibit Opening." *Glock Magazine*. Bang Media. Annual 2017

Author. "The 28 Most Notable Guns from Remington's 200-Year History." *Outdoor Life Magazine*. Bonnier Corporation, 2016

Author. "Cassie Waters: Businesswoman of the Old West." *Guns of the Old West*. Harris Publications, Spring 2016

Author. "Making History: GLOCK Pistols at the Cody Firearms Museum" *Glock Magazine*. Harris Publications. Annual 2016

Author. "Pocket Pistols: 10 Seminal Guns from the Past 300 Years." *Pocket Pistols*. Harris Publications. 2016

Author. "The Gun that Won the Western and the Unforeseen Stars of *Winchester '73*" *Guns of the Old West*. Harris Publications.

Author. "Frontier Profile: Jedediah Strong Smith" *American Frontiersman*. Harris Publications

Author. "Frontier Legend John Johnston." *American Frontiersman*. Harris Publications

Author. "The Guns of John Johnston." *American Frontiersman*. Harris Publications

Author. "Annie Oakley VS Lillian Smith: A Female Sharpshooter Rivalry." *Guns of the Old West*. Harris Publications, Spring 2015



Author. "Icons and Has-beens." *American Handgunner*. FMG Publications, 2014

Author. "Triggering Memory: American Identity in *Cowboys and Aliens*." *Points West*. Spring 2012

Author. "Unloading the Six-Shooter: Disassembling the Glamorization and Demonization of Firearms in the Arts." *Points West*, Fall 2011.

**Columns:**

Author. Old School Series. *Recoil Magazine*

Author. Flashback. *Concealment Magazine*

Author/Brand Ambassador. *The Bourbon Review*.

Author. *American Association for State and Local History*. Summer 2019

Author. "Weird West: Fact or Fiction" *Guns of the Old West*. Athlon Outdoors (formerly Harris Publications)

1<sup>st</sup> Assault Rifle

Colt VS Winchester Revolver

Did Winchester Really Win the West?

Oliver Winchester's Lever Action Shotgun

Remington Cane Gun

Author. "Cowboy Action Round Up." SHOT Show New Products. *Guns of the Old West*. Athlon Outdoors (formerly Harris Publications). 2015, 2016, 2017

**Reviews:**

Reviewer: Edited by Jonathan Obert, Andrew Poe, and Austin Sarat. Oxford: Oxford University Press, 2018. *Journal of Technology & Culture*, Fall 2019

Author. "Everybody Loves an Outlaw: Taylor's Outlaw Legacy Revolver Series." *Guns of the Old West*. Harris Publications

Reviewer: Richard Rattenbury. *A Legacy in Arms: American Firearms Manufacture, Design and Artistry, 1800-1900*. *Chronicle of Oklahoma*, Spring 2016

**Selected Blogs & Vlogs:**

Recoil Magazine

Weekly video series beginning October 2017 to Present

Dillon Precision

Historical Videos on Ammunition (Upcoming)

Outdoor Life

Top 10 Guns in American History  
Guns of the Old West: 10 Iconic Firearms and the Legendary Men (and Women) Who Shot Them  
13 of the Biggest Gun Fails in Recent Firearms History  
Gun of the Week:  
John Martz Luger  
Apache Revolver  
German Frei Pistol  
King Louis XV Embellished Blunderbuss  
Armalite AR-17 Shotgun  
Getting the Christmas Goose with a Goose Rifle & Cutaway Suppressor  
Mossberg Brownie  
Wesson & Leavitt Belt Revolver  
William Harnett and the Faithful Colt 1890  
Winchester Model 1894 Lever Action Rifle  
Ruger Semi-Automatic Pistol, 1 of 5,000  
Herb Parson's Winchester Model 71 Lever Action Rifle  
Lincoln Head Hammer Gun  
American Trap Gun  
Browning Brother's Single Shot Rifle Patent  
Feltman Pneumatic Machine Gun  
U.S. Springfield-Allin Conversion Model 1866 Trapdoor Rifle  
Winchester Wetmore-Wood Revolver  
Webley-Fosbery Automatic Revolver  
Hopkins & Allen XL3 Double Action Revolver  
DuBiel Modern Classic Rifle  
Colt Model 1877 "Thunderer" Double Action Revolver  
Tom Tobin's Colt Model 1878 Frontier Revolver  
Walch 10-Shot Double Hammers Pocket Revolver  
Winchester Model 1887, Serial No. 1  
Deringer vs Derringer  
The Forgotten Winchester 1873 of Great Basin National Park

Range 365

To the One Who Got Away

Gun Review: New Glock 19 Gen 5

Ain't She a Pistol? 10 Historic Gun Ads Featuring Women

National Shooting Sports Foundation

#### The Gun Vault:

Winchester 1873 Found in Great Basin National Park  
Col. Jeff Cooper's Colt MK IV Series 80  
500+ Year Old Firearms, Matchlocks, Flintlocks  
U.S. Presidents Guns  
Cross Dominance Shotgun  
Herb Parson's Winchester Model 71 Rifle  
Audie Murphy's Colt Bisley Revolver  
4 Gauge Winchester Wildfowler  
Pocket Pistols  
Henry Ford's Winchester Model 1887 Lever Action Shotgun  
Tom Knapp's First Gun  
Buffalo Bill Cody's Winchester 1873  
Colt Model 1861 Navy Serial No. 1  
Cassie Waters' Hopkins & Allen XL3 Revolver  
Glock 17

#### The Truth About Guns

Presidential Presentation Rifles  
Factory Cut-Away M16A1  
1854 Smith & Wesson Repeating Rifle (Serial Number 8)  
Winchester World's Fair Model 1866 Deluxe Sporting Rifle  
Raymond Wielgus Collection  
Gastinne-Renette Muzzleloading Percussion Target Pistols  
Oliver Winchester's Jennings Repeater  
Henry Ford's Winchester Model 1887  
Winchester Model 1866 Musket in .44 Rimfire  
English Wheellock  
Southern Belle American Long rifle  
Annie Oakley's Model 1892 Smoothbore Rifle  
Catherine the Great of Russia's Blunderbuss Gift to King Louis XV of France  
Color Case-Hardened GLOCK 43: Merging the Old West with the New  
Buffalo Bill Center of the West – Unloading the Myth  
The Cody Firearms Museum – Yesterday, Today, and Tomorrow  
Guns of the Week – Christmas List  
Guns of the Week: December 15-19  
Guns of the Week – The Cody Firearms Museum  
Guns of the Week – German Firearms  
Guns of the Week – Scheutzenfest  
Guns of the Week – Air Guns  
Guns of the Week – Early Firearms Law  
Guns of the Week – October 13-17  
Guns of the Week – Ingenious Engineering  
Guns of the Week – Remington – Smoot  
Guns of the Week – September 22-26; 15-19; 8-12  
CSI: Firearms Museum Edition

Confessions of a Gun Historian  
Art Guns: Aesthetics Over Function?  
What Good's a Gun Without a Firing Pin?  
Gun Installations, Trials & Tribulations  
A True Test of Marital Trust and Love  
Remembering Tom Knapp  
Cody Firearms Museum Goes Hollywood  
When Will My Firearms Go On Display  
What's Your Cody Firearms Museum  
To Vlog or Not to Vlog  
We Don't Just Have Old Guns in Our Museum: SHOT Show 2014  
Taking a Staba at Displaying More Guns  
"Hi Yo Silver" Cook Away! Lone Ranger Display  
The Shooting Wire  
Winchester's 150<sup>th</sup> Anniversary Website  
Remington's 200<sup>th</sup> Anniversary Website

EXHIBIT “B”

EXHIBIT “B”

### **Exhibit B: Definitions**

**Air Rifle:** a rifle that fires projectiles with compressed air.

**Fire lance:** early gunpowder weapon in which a barrel would be attached to a longer weapon.

**Flintlock:** A firearm that uses a piece of flint to strike a steel plate, known as a frizzen, to spark and fire the gun

**Frizzen:** steel plate on a flintlock that the flint strikes to create spark.

**Gunpowder:** an explosive consisting of a mixture of saltpeter, sulfur, and charcoal

**Hand cannon:** a cannon that fits in your hand.

**Lock plate:** the plate on the side of the firearm that contains the springs and mechanical components necessary to fire a gun from matchlock to percussion ignition.

**Long rifle:** an American made firearm that was popular in the colonies and early America. It had a longer barrel and a smaller caliber than European variations of sporting arms.

**Matchlock:** the first ignition system, utilizing a slow burning match to fire the gun

**Metallic cartridge:** Both rimfire and centerfire and contains all components of a cartridge within a metal case.

**Minie ball:** the first successful conically shaped projectile, named for its inventor Claude Etienne Minie

**Percussion:** an internal combustion system that utilized a fulminate compound to send a spark inside the barrel of the gun to fire it

**Percussion Cap:** the cap used to create the spark of a percussion ignition firearm. It contains a fulminate, typically mercury.

**Silencer:** a sound suppression device that also hides muzzle flash and causes recoil reduction

**Smokeless powder:** explosive propellant that produces less smoke than gun powder.

**Superposed:** a type of repeating firearm in which projectiles and powder are stacked like a roman candle.

**Wheellock:** an ignition system that utilizes a serrated disc that spins slightly to spark a piece of pyrite and fire the gun.

EXHIBIT “C”

EXHIBIT “C”

**Exhibit C: Hand Cannon**



From the Cody Firearms Museum, Buffalo Bill Center of the West Collection.



EXHIBIT “D”

EXHIBIT “D”

**Exhibit D: Matchlock**



Reproduction Matchlock made by Eric Von Aschwege

EXHIBIT “E”

EXHIBIT “E”

**Exhibit E: Early Target Shooting Medal**



(obverse)

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A GERMAN PARCEL-GILT SILVER TARGET SHOOTING PRIZE  
DRESDEN, DATED 1537, UNMARKED

Formed as a large shaped circular pendant medallion suspending two smaller openwork medallions, the moulded border with applied foliage and inner laurel wreath centering on a cherub's mask with suspension ring above, the centre *repoussé* and chased with a huntsman with raised matchlock rifle amongst scrolling flowers and foliage, standing beside an escutcheon of arms of Dresden held by a putto, the backplate engraved with inscription within scrolling foliage incorporating two figures supporting a target above and a standing putto below, the smaller pendant shields each formed as a foliage and berried wreath enclosing an escutcheon, engraved with instruments emblematic of the building trade, one further engraved with initials BK, coat-of-arms and date 1541, the reverse with inscription and date 1540, the other with initials HR, coat-of-arms and date 1563, the reverse with date 1562, within engraved wreath

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EXHIBIT “F”

EXHIBIT “F”

**Exhibit F: Wheellock Pistol**

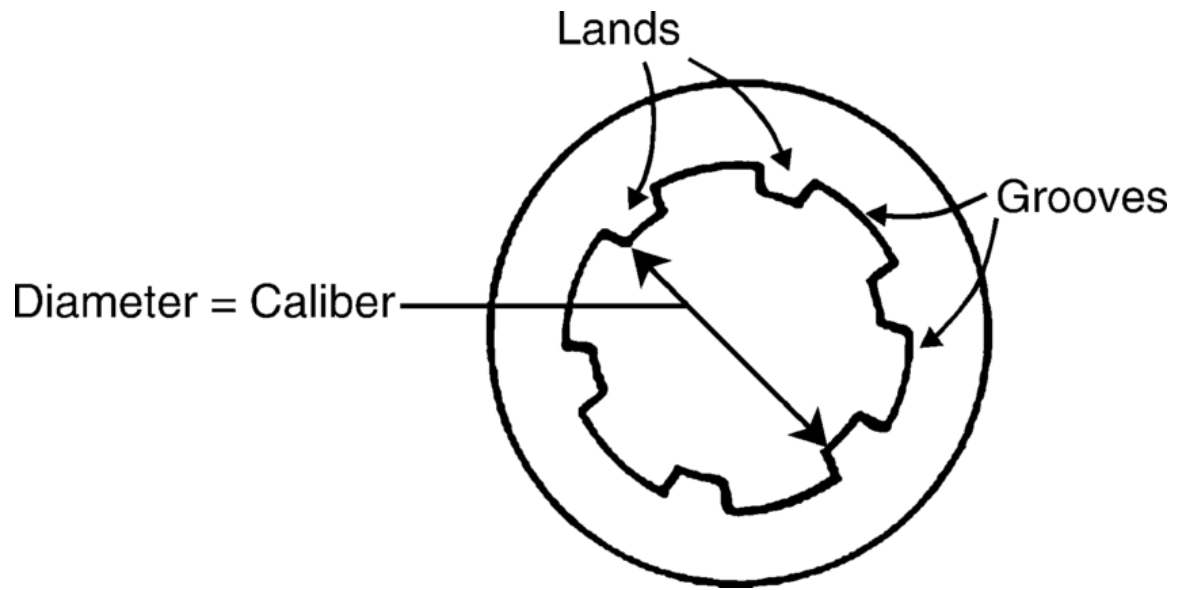


From the Cody Firearms Museum Collection, Buffalo Bill Center of the West.

EXHIBIT “G”

EXHIBIT “G”

**Exhibit G: Rifling Diagram**



[www.researchgate.net](http://www.researchgate.net)



EXHIBIT “H”

EXHIBIT “H”

**Exhibit H: American Long Rifle**



Warfarehistorynetwork.com

EXHIBIT “I”

EXHIBIT “I”

### **Exhibit I: Double Barrel (Swivel Barrel) American Long Rifle**



From the Cody Firearms Museum Collection, Buffalo Bill Center of the West  
<http://collections.centerofthewest.org/argus/bbhc/Portal/bbhc.aspx?lang=en-US>

EXHIBIT “J”

EXHIBIT “J”

**Exhibit J: Centerfire Olympic Biathlon Rifle**



*\*Note the thumbhole stock and palm rest which exist to stabilize the gun for precision target shooting\**

From the Cody Firearms Museum Collection, Buffalo Bill Center of the West.

EXHIBIT “K”

EXHIBIT “K”

**Exhibit K: Multi-Barrel Hand cannon**



From the Cody Firearms Museum collection, Buffalo Bill Center of the West.



EXHIBIT “L”

EXHIBIT “L”

**Exhibit L: 16-Shot Wheellock**



From the National Firearms Museum and pictured in *America's First Freedom* magazine.

EXHIBIT “M”

EXHIBIT “M”

**Exhibit M: Kalthoff Magazine-fed Repeater**



Google Image Search

EXHIBIT “N”

EXHIBIT “N”

**Exhibit N: Lorenzoni Style Magazine-fed Repeater**



ROYAL ARMOURIES

Royal Armouries Collection in Leeds, UK.

EXHIBIT “O”

EXHIBIT “O”

**Exhibit O: Dafte Revolver**



Royal Armouries, Leeds, UK.



EXHIBIT “P”

EXHIBIT “P”

**Exhibit P: Wetschgi Magazine-fed Firearm**



Christie's Auction

EXHIBIT “Q”

EXHIBIT “Q”

**Exhibit O: Cookson Magazine-fed Repeater:**



From the collection of VAM in South Kensington, UK

EXHIBIT “R”

EXHIBIT “R”

Exhibit R: Boston Gazette Advertisement (1756)

THE  
**Boston-**  
AND  
COUNTRY  
Gazette,  
JOURNAL.  
No. 54.



Containing the freshest Advices  
Foreign and Domestick.

MONDAY, APRIL 12, 1756.

Printed by N. B. Bowers from Newland, Schoo, Pin-  
u. Schoo. Tryal, James Dickinson from 1756.

THE Trustees to Mr. Cammon Steven's Creditors,  
for the last Time, GIVE NOTICE, That they shall,  
without fail, sue all the Debtors to that Estate, who  
do not discharge their respective Ballances by the last  
Day of May next. Boston, April 10, 1756.

MADE by JOHN COOKSON, and to be Sold  
by him at his House in Boston: A handy  
Gun of 9 Pound and a half Weight; having a Place  
convenient to hold 9 Bullets, and Powder for 9  
Charges and 9 Primings; the said Gun will fire 9  
Times distinctly, as quick, or slow as you please,  
with one turn with the Handle of the said Gun, it  
doth charge the Gun with Powder and Bullet, and  
doth prime and shut the Pan, and cock the Gun. All  
these Motions are performed immediately at once, by  
one turn with the said Handle. Note, there is No-  
thing put into the Muzzle of the Gun as we charge  
other Guns.

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EXHIBIT “S”

EXHIBIT “S”

**Exhibit S: Belton Superposed Pistol (Reproduction)**



Rock Island Auction



EXHIBIT “T”

EXHIBIT “T”

**Exhibit T: Girardoni Air Rifle**



Google Image Search

EXHIBIT “U”

EXHIBIT “U”

**Exhibit U: Duck's Foot Pistol**

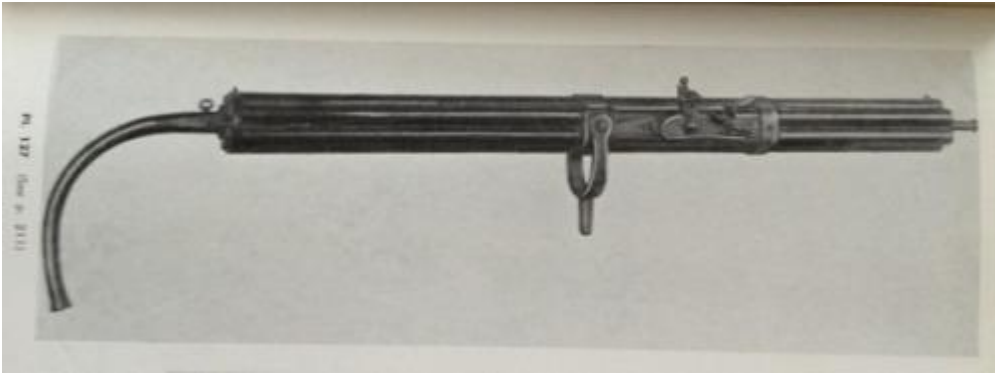


From the Cody Firearms Museum Collection, Buffalo Bill Center of the West

EXHIBIT “V”

EXHIBIT “V”

**Exhibit V: Chambers Multi-Barrel Firearm**



[www.historicalfirearms.info](http://www.historicalfirearms.info)

EXHIBIT “W”

EXHIBIT “W”

**Exhibit W: Jennings Repeater**



Google Image Search



EXHIBIT “X”

EXHIBIT “X”

Exhibit X: South Carolina Gazette Estate Sale (1736)

NUMB. 125.

THE  
**South-Carolina Gazette.**

*Containing the freshest Advices Foreign and Domestick.*

From **Saturday, JUNE 12,** to **Saturday, JUNE 19, 1736.**

THE SAID JOHN DONNING, at the EXAMINATION of JOHN BRAND  
 afore said.

**This is to give Notice to all Persons** that have any Demands on the Estate of Mr. *Joseph Massey* deceased, to bring in their Accounts, in order that all possible means may be used to discharge the same, and all such as are indebted to the said Estate, are desired to pay the same by the 1st of *August* next without fail, to *Philip Massey* Administrator of the said Estate, living at the Sign of the Cross Guns between Mr. *John Brand* and the Printer. He has to be sold a Silver hilted small Sword, two Silver Watches, a six times repeating Gun, a chamber'd Gun, and a double barrel Gun, &c. a pair of Smith's large double bellows, a new Anvil with a Beack-iron to it, sundry pair of large Vices, sortment of Files and many other tools, &c. a history of Mines and Minerals, *Harris's* Lexicon technicum, in Folio two Volumes, and many other Books of the Mathematicks, all which will be sold very reasonable for ready Money.

N.B. Whereas a Book in folio, intituled, *the Construction and principal use of all mathematical Instruments*, translated from the French of Mr *Bion* by *Edm Store*, and several other Books have been lent out by the Deceased, the Persons who have the same in possession are kindly intreated to return them to

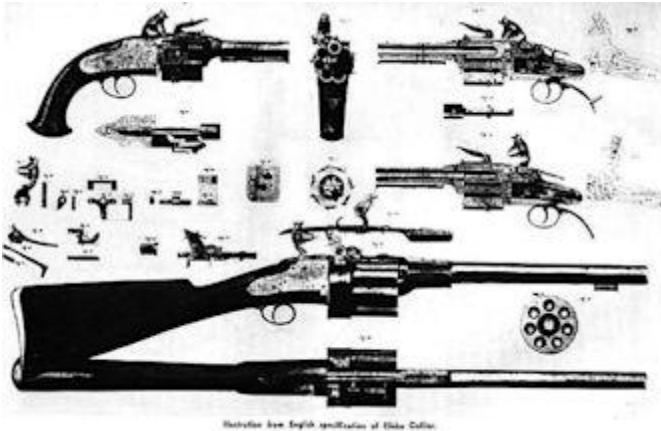
PHILIP MASSEY.

**To be Sold to the highest Bidder on the** 29th of July next, the residue of the Slaves, Horses, black Cattle & Sheep, Plate and Plantation tools, late belonging to the Estate of *Th: Donning* deceased, at the Pond's Plantation, N.B. The Sale to begin at 10 o'clock in the morning. The Money to be paid down before the Delivery, or the Sale to

EXHIBIT “Y”

EXHIBIT “Y”

**Exhibit Y: Collier Revolver**



Google Image Search

EXHIBIT “Z”

EXHIBIT “Z”

**Exhibit Z: Pepperbox Pistol**



Google Image Search

EXHIBIT “AA”

EXHIBIT “AA”

Exhibit AA: Colt's February 1836 Patent

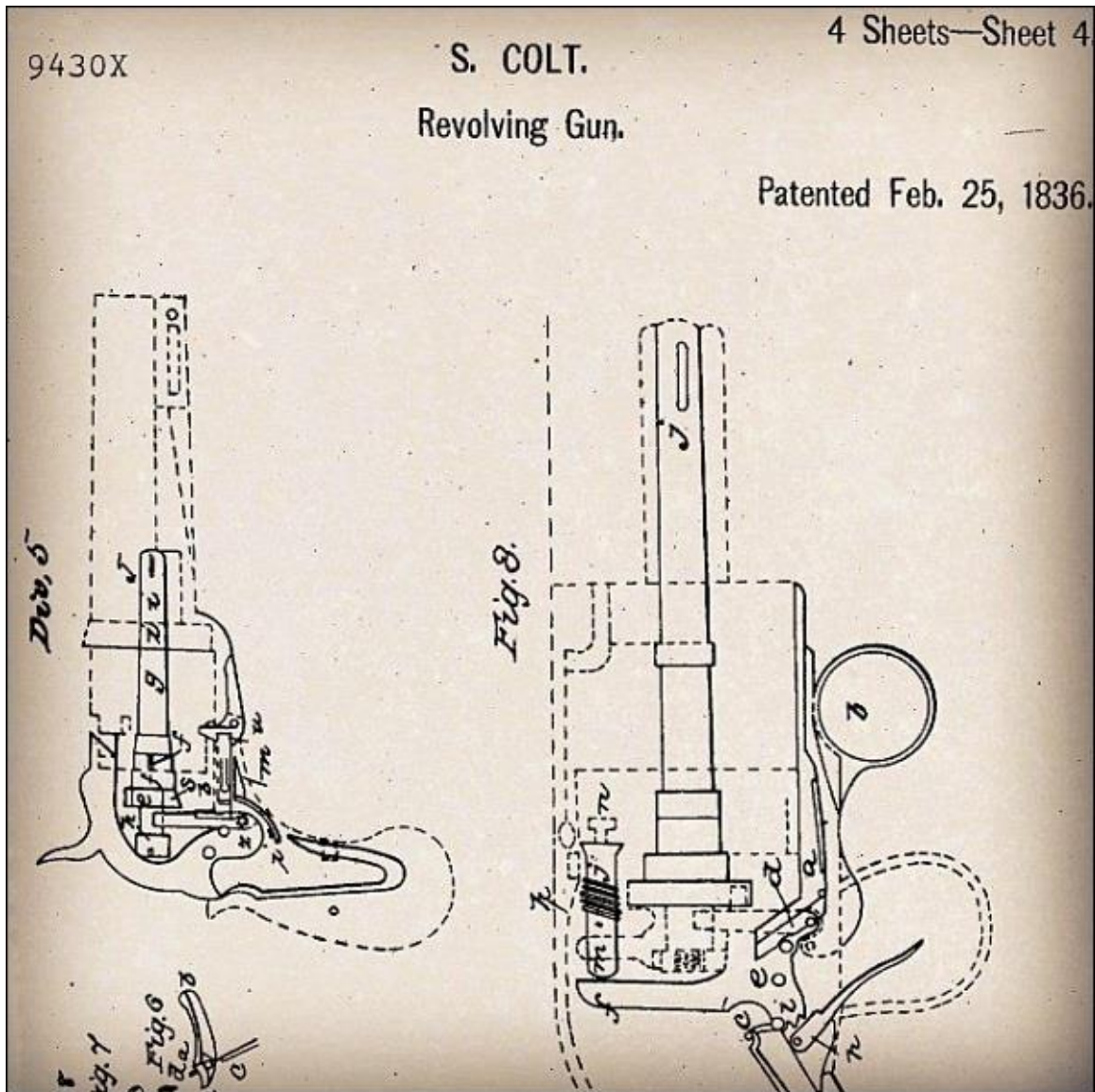




EXHIBIT “BB”

EXHIBIT “BB”

**Exhibit BB: Porter Turret Rifle**



Gunsinternational.com

Gunsinternational.com

EXHIBIT “CC”

EXHIBIT “CC”

**Exhibit CC: Lindner Patent Prototype**



Private Collection

EXHIBIT “DD”

EXHIBIT “DD”

**Exhibit DD: Smith & Wesson Revolver**



Collector's Firearms

EXHIBIT “EE”

EXHIBIT “EE”

**Exhibit EE: Volcanic Pistol and Rifle**



Winchester Arms Collector's Association



EXHIBIT “FF”

EXHIBIT “FF”

**Exhibit FF: Henry Rifle**



Google Image Search

EXHIBIT “GG”

EXHIBIT “GG”

**Exhibit GG: Winchester Model 1866 Rifle**



Google Image Search

EXHIBIT “HH”

EXHIBIT “HH”

**Exhibit HH: Evans Repeating Rifle**



Google Image Search

# EXHIBIT “II”

# EXHIBIT “II”

**Exhibit II: Savage Model 1899 with Rotary Magazine**



Armlist.com



EXHIBIT “JJ”

EXHIBIT “JJ”

**Exhibit JJ: Borchardt C93 Semi-Automatic Pistol**



Christie's Auction

EXHIBIT “KK”

EXHIBIT “KK”

**Exhibit KK: Mauser C96 Semi-Automatic Pistol**



Collector's Firearms

EXHIBIT “LL”

EXHIBIT “LL”

**Exhibit LL: Colt Model 1911 Semi-Automatic Pistol**



Google Image Search

EXHIBIT “MM”

EXHIBIT “MM”

**Exhibit MM: Hunt Volitional Tubular Magazine Rifle**



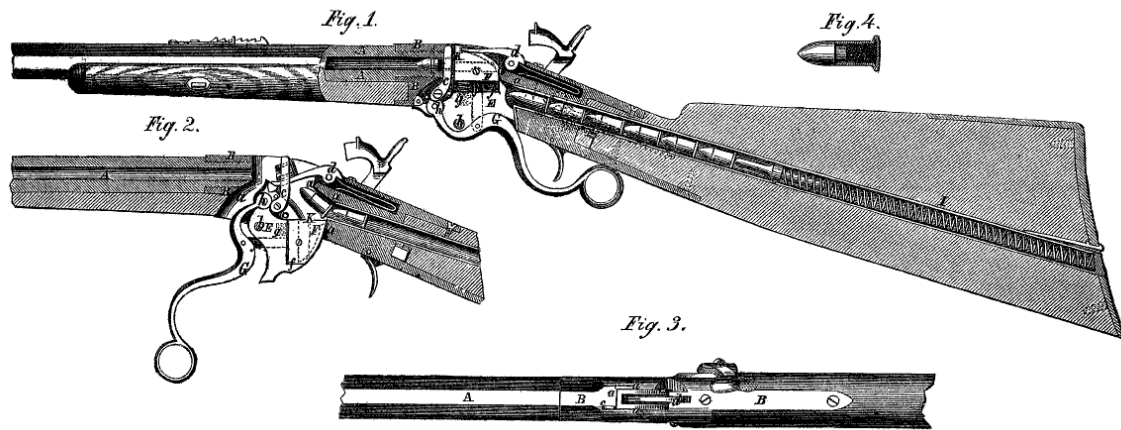
From the Cody Firearms Museum Collection, Buffalo Bill Center of the West



EXHIBIT “NN”

EXHIBIT “NN”

**Exhibit NN: Spencer Magazine**



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Google Image Search

EXHIBIT “OO”

EXHIBIT “OO”

**Exhibit OO: Genhart Magazine**



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From the Cody Firearms Museum collection, Buffalo Bill Center of the West

EXHIBIT “PP”

EXHIBIT “PP”

**Exhibit PP: Jarre Magazine**



From the Cody Firearms Museum collection, Buffalo Bill Center of the West.

EXHIBIT “QQ”

EXHIBIT “QQ”

**Exhibit OO: Rollin White Patent**

R. WHITE.  
REPEATING FIREARM.  
No. 12,648. Patented Apr. 3, 1855.

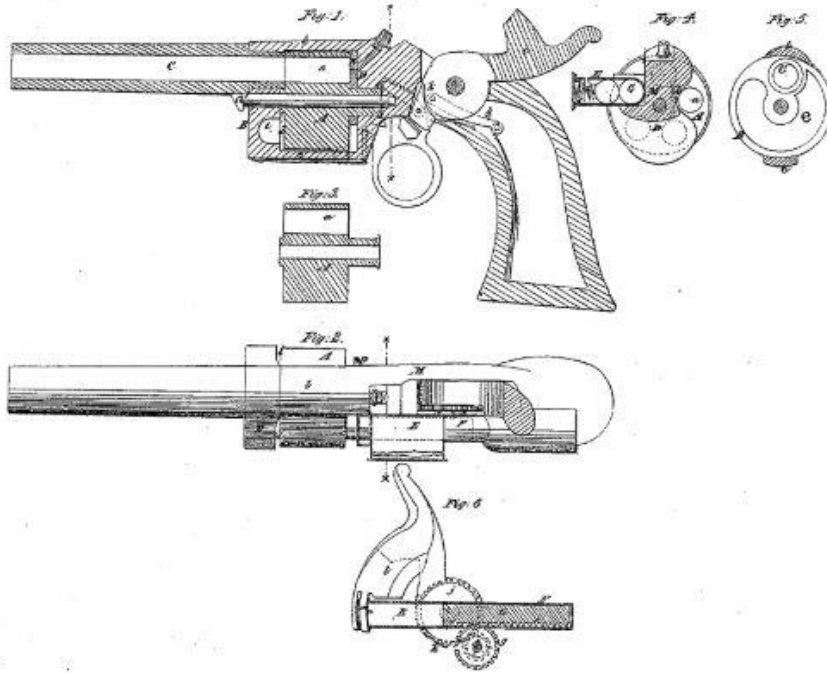




EXHIBIT “RR”

EXHIBIT “RR”

**Exhibit RR: Robert Wilson Patent**

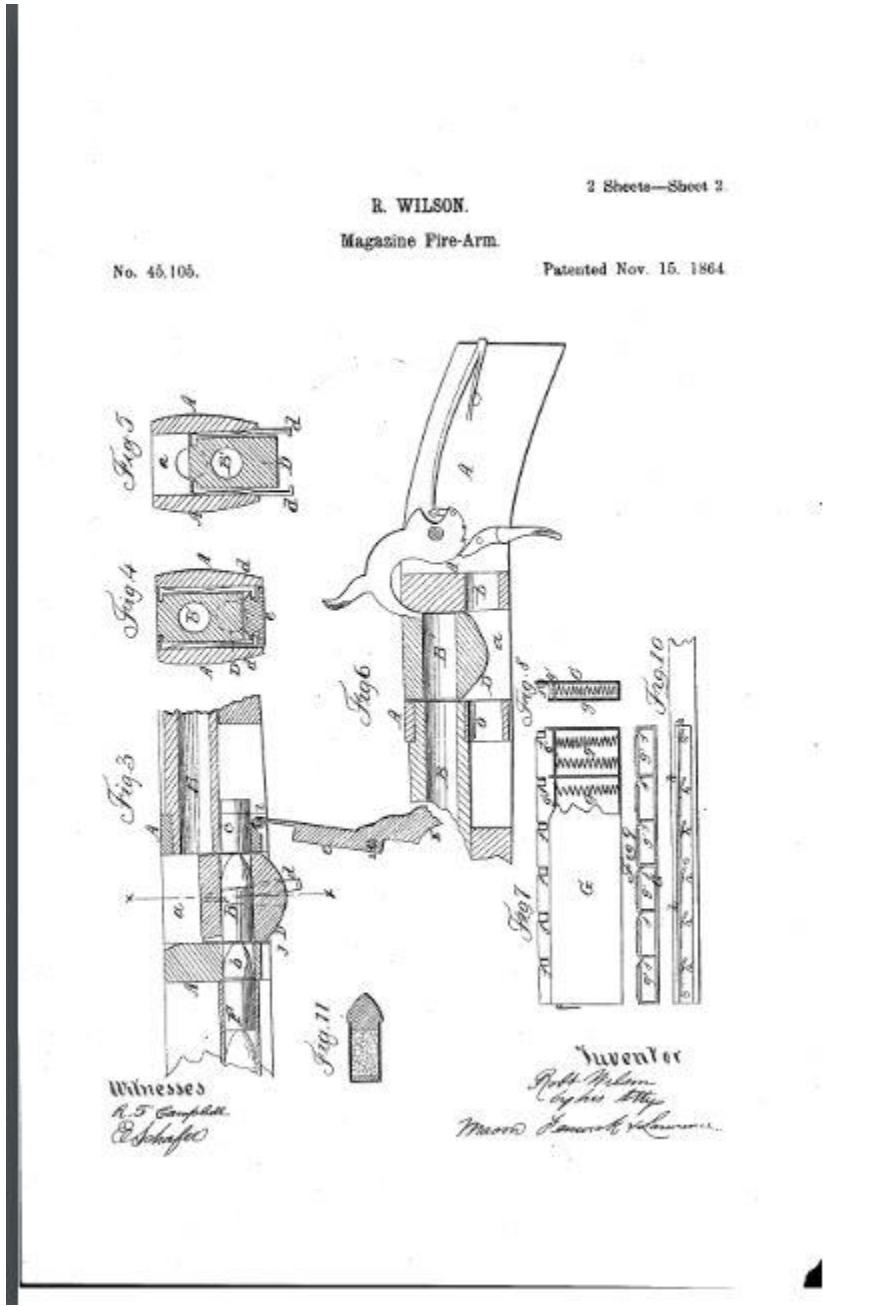
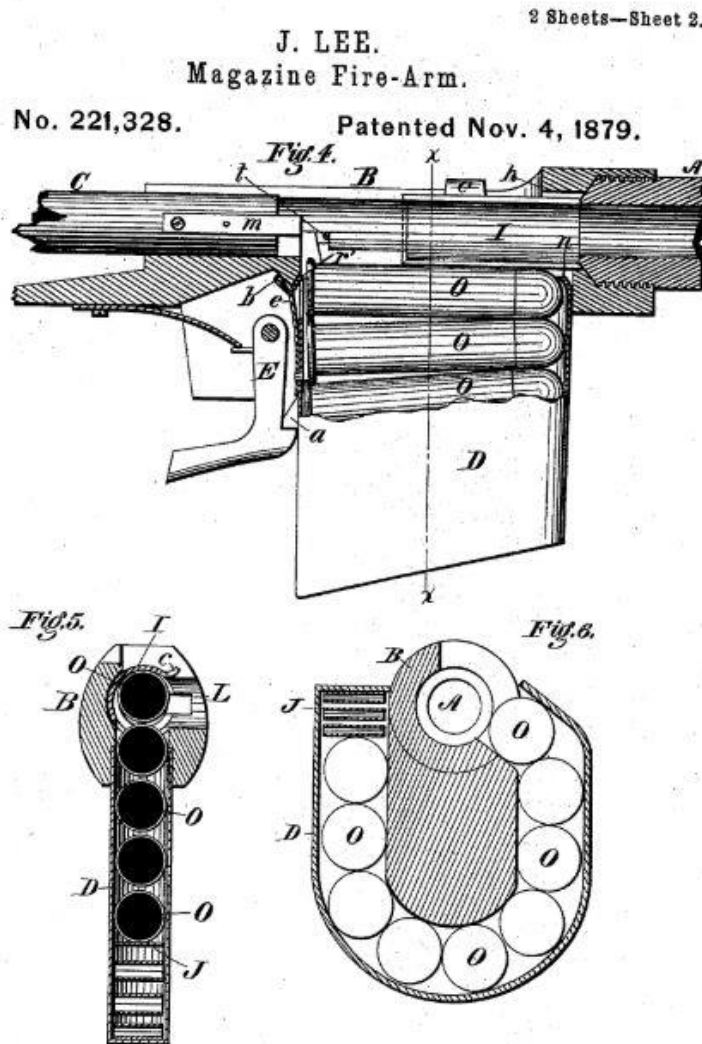


EXHIBIT “SS”

EXHIBIT “SS”

Exhibit SS: James Paris Lee Patent



Witnesses:  
Donn B. Twitchell  
D. P. Cowl

Inventor:  
James Lee  
By Dodge & Son,  
Attys

THE KODAK PICTURE CO. PHOTOGRAPH, NEW YORK, N. Y.

EXHIBIT “TT”

EXHIBIT “TT”

**Exhibit TT: Schuetzen and Frei Firearms**



From the Cody Firearms Museum Collection, Buffalo Bill Center of the West

EXHIBIT “UU”

EXHIBIT “UU”

**Exhibit UU: Pistol Grips with Detachable Stocks**

Flintlock pistol with detachable stock



Colt Model 1851 with detachable stock





Borchardt with detachable stock



Mauser with detachable stock



From the Cody Firearms Museum Collection, Buffalo Bill Center of the West

EXHIBIT “VV”

EXHIBIT “VV”

**Exhibit VV: M1 Carbine with Pistol Grip and Folding Stock**



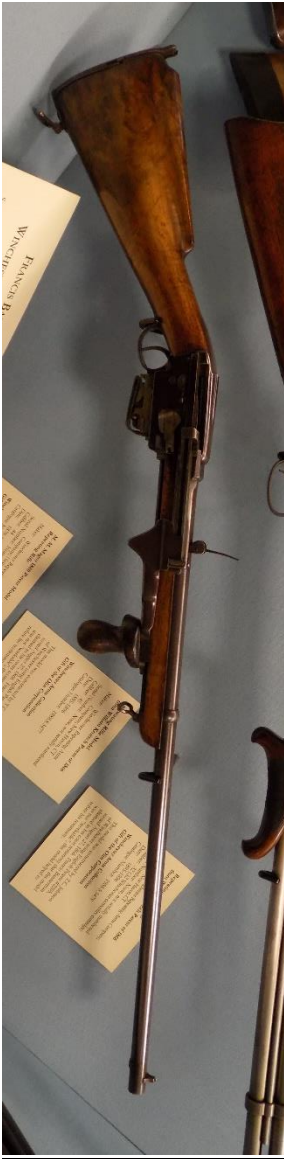
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EXHIBIT “WW”

EXHIBIT “WW”

**Exhibit WW: Magot Rifle**



From the Cody Firearms Museum Collection, Buffalo Bill Center of the West

EXHIBIT “XX”

EXHIBIT “XX”

**Exhibit XX: Folding Stock Blunderbuss**



From the Cody Firearms Museum Collection, Buffalo Bill Center of the West

EXHIBIT “YY”

EXHIBIT “YY”



**Exhibit YY: Try Guns – Made to fit a Gun to the User**



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From the Cody Firearms Museum Collection, Buffalo Bill Center of the West

EXHIBIT “ZZ”

EXHIBIT “ZZ”

**Exhibit ZZ: Flash Suppressor on a Lee Enfield**



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